ECMWF Global Data Monitoring Report

March 2022

European Centre for Medium-Range Weather Forecasts
Europäisches Zentrum für mittelfristige Wettervorhersage
Centre européen pour les prévisions météorologiques à moyen terme

Contents

Summary of Revisions (in reverse order)

Revision 28 (June 15) – Monitoring of SYNOP and SYNOP-SHIPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart.

Revision 27 (Feb 15) – Selection criteria for SHIPs are modified as per SOT-7/Doc.9.1.1.
Different criteria applied to Manual and Automatic SHIPs.

Revision 26 (Dec 14) – Coverage chart for ATOVS AMSU-A for Noaa_16 removed

Revision 25 (Mar 13) – Monitoring of Radiosondes and ASAPs now includes BUFR encoded observations for those which were assimilated as well as for those without TAC counterpart.
Tables 24 and 25 are also added to show the identifiers of these BUFR observations separately.

Revision 24 (Aug 06) – North Atlantic Monitoring statistics replaced by EUCOS Area Monitoring Statistics (tables 13 to 23).
Airep tables removed from this section.

Revision 23 (Dec 00) – Coverage charts for Noaa_14 MSU replaced by ATOVS AMSU-A for Noaa_16.

Revision 22 (Aug 99) – Coverage charts for TOVS thickness 300-100 hPa replaced by (A)TOVS AMSU-A and MSU (Noaa_15 and Noaa_14).

Revision 21 (May 99) – Monitoring statistics ceased for Noaa_11 as satellite is no more available.

Revision 20 (Sep 98) – Changes to tables and annex to remove all mention about data usage. Two more levels (50 and 850 hPa) added to the COSNA statistics for Sondes.

Revision 19 (Jul 98) – From June 29th, 1998 ECMWF model assimilates temperature data instead of geopotential from radiosondes. As a consequence the number of used geopotential data drops to zero in tables 7, 10, 13 and 15.

Revision 18 (Apr 98) – Changes to tables and annex to introduce the usage of accepted numbers and observations instead of precentage of rejection.

1 Introduction

The ECMWF global data monitoring report is a monthly publication intended to give an overview of the availability and quality of observations from the Global Observing System within the World Weather Watch of the World Meteorological Organisation. It should be recognised that the statistics given in this report refer to data as received at ECMWF in time for the appropriate analysis. The annex of the report gives further explanations of the methods applied to compile the statistics and on the reference used to establish the quality of observations.

The information presented on data quality is based on differences between observations and the values of the most recent ECMWF forecast ("first guess") of the same parameter. Depending on the time of the observation, the forecast range is between 9 and 15 hours. It should be recognised that although the quality of the first-guess is of a generally high standard this is only true to a limited extent in certain areas, such as the tropics and data-sparse areas of both northern and southern hemispheres. The data quality results should therefore be used with care when assessing the absolute quality of a particular observing platform. Other indicators such as long-term trends of station performance, particularly in comparison with nearby stations, can be more useful in this respect.

The global monitoring results presented in this report are meant to serve a wider meteorological community as well as to support special WMO programmes such as TOGA and EUCOS. The contents of the report may therefore be adapted for special requirements as necessary.

As recommended at the ninth session of the Commission for Basic Systems at Geneva 1988, lead centres have been appointed for each main type of observation which should liaise with the participating centres and co-ordinate all the results, inform the WMO Secretariat immediately of obvious problems, and produce every six months a consolidated list of observations of that particular type believed to be of low quality. The presently nominated centres are: RSMC Exeter for marine surface observations; RSMC ECMWF for radiosonde and pilot observations; WMC Washington for aircraft and satellite observations.

ECMWF produces this monthly report as part of its routine monitoring activity in order to facilitate the exchange of monitoring information. Tables are presented according to the CBS recommended standards for the exchange of monitoring results. Copies of the report will be provided to major GDPS centres participating in data monitoring activities as initiated and recommended at the ninth session of the Commission for Basic Systems in Geneva 1988, and to the WMO Secretariat and the International TOGA office in Geneva.

Any comments on the contents and the format of the report are welcome and should be addressed to:

ECMWF
Attn. Head of Evaluation Section
Shinfield Park
Reading, Berkshire, RG2 9AX
United Kingdom

2 Data summary - History of events

2.1 Radiosondes

The following is a list of land-based stations showing a change in reporting frequency (of 500 hPa geopotential) of at least 10 observations compared with the average over the previous 3 months. The number of reports received at ECMWF for the current and previous month is shown in addition to the observation time.

Ident	Time	Feb	Mar	Ident	Time	Feb	Mar
33041	(00)	14	0	01004	(00)	0	19
33317	(12)	22	0	10393	(00)	25	38
33345	(00)	24	0	17064	(00)	2	31
33345	(12)	21	0	40265	(00)	5	27
33393	(00)	19	0	40706	(12)	7	30
33791	(12)	22	0	40738	(00)	20	31
33837	(00)	22	0	40745	(12)	10	31
34300	(00)	23	0	40800	(00)	8	26
42101	(12)	13	1	40809	(12)	10	25
42379	(00)	25	2	40841	(12)	3	30
47418	(00)	25	0	40848	(00)	8	31
47418	(12)	24	0	40856	(00)	8	31
47600	(00)	29	0	40875	(00)	0	15
47600	(12)	28	0	42647	(00)	16	30
47741	(00)	26	0	42647	(12)	20	31
47741	(12)	27	0	42701	(00)	0	18
47778	(00)	25	0	42809	(00)	18	31
47778	(12)	25	0	42809	(12)	19	31
48698	(00)	18	2	43003	(12)	0	28
48698	(12)	19	0	43285	(00)	8	30
61687	(12)	16	0	43371	(00)	10	28
72208	(00)	32	11	47169	(00)	2	13
72208	(12)	35	3	60096	(12)	1	29
72214	(00)	30	4	61052	(00)	0	23
72318	(00)	28	14	61052	(12)	15	26
72403	(00)	28	15	61415	(00)	0	19
72501	(00)	36	4	61415	(12)	1	28
72501	(12)	32	3	64870	(12)	12	25
74646	(00)	26	15	65548	(12)	11	24
76394	(00)	24	2	67083	(12)	0	11
76743	(00)	20	0	68110	(12)	0	13
76805	(00)	15	0	74004	(00)	17	32
80028	(12)	28	13	74004	(12)	18	38
82193	(12)	28	15	74005	(00)	12	26
82917	(12)	24	0	74005	(12)	10	35
85586	(00)	24	11	76256	(00)	13	27
89009	(12)	24	5	76256	(12)	4	22
96011	(00)	20	0	76458	(12)	10	25
96011	(12)	11	0	76595	(12)	13	27
96147	(00)	28	5	76654	(12)	4	16
96147	(12)	22	0	76679	(12)	10	22
96509	(00)	22	0	78384	(00)	11	28
96509	(12)	22	0	78384	(12)	11	30
96645	(00)	27	3	78486	(00)	7	31
96645	(12)	28	3	80001	(00)	0	31
96805	(00)	27	1	80001	(12)	0	30
96805	(12)	24	1	83554	(00)	7	30
97502	(00)	26	0	83554	(12)	7	29

2.2 Drifting Buoys

Surface pressure observations from **1724** drifting buoys were received during the month.

3 Global monitoring statistics

The following figures and tables provide information on both the availability and quality of various data types as received at ECMWF during the month. A brief description of each figure/table is given below. For a full explanation please refer to the Annex.

3.1 Data Availability

Figures 1-9 are global charts for each data type showing the average number of observations received in 24 hours in 5 degree boxes. The average daily number of observations (global) is also displayed with a breakdown, where appropriate, for each WMO region (figures 1, 3 and 4) and Ocean (figures 1-4).

Fig	Observation Type	Parameter	Level/Layer
1	SYNOP/SHIP	MSL Pressure	Surface
2	DRIFTER	MSL Pressure	Surface
3	TEMP	Geopotential	500 hPa
4	TEMP/PILOT	Wind	300 hPa
5	AIRCRAFT (AIREP/AMDAR etc.)	Wind	300-150 hPa
6	SATOB	Wind	400-150 hPa
7	SATOB	Wind	1000-700 hPa
9	TOVS (120 km) - NOAA14	Thickness	300-100 hPa

(Figure 1 includes data from fixed marine platforms e.g. moored buoys.)

3.2 Data Quality

Tables 1-8 contain lists of suspect stations in the format according to Recommendation 3 CBS-Ext(85).

Tab	Observation Type	Parameter	Level/Layer
1	SHIP	MSL Pressure	Surface
2	SHIP	Wind Speed	Surface
3	SHIP	Wind Direction	Surface
4	DRIFTER	MSL Pressure	Surface
5	DRIFTER	Wind Speed	Surface
6	DRIFTER	Wind Direction	Surface
7	TEMP	Geopotential	1000- 30 hPa
8	TEMP/PILOT	Wind	1000-100 hPa
9	TEMP/PILOT	Wind Direction	500-150 hPa

(SHIP tables include data from fixed marine platforms e.g. moored buoys.)

Figures 10-13 show the locations of suspect stations given in tables 7 and 8.

Fig	Observation Type	Parameter	Observation Time
10	TEMP	Geopotential	00 UTC
11	TEMP	Geopotential	12 UTC
12	TEMP/PILOT	Wind	00 UTC
13	TEMP/PILOT	Wind	12 UTC

Tables 10 and 11 provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month.

Tab	Parameter	Observation Time
10	Geopotential	00 and 12 UTC
11	Wind	00 and 12 UTC

Figures 14–18 show global charts of SATOB and aircraft wind statistics in the form of wind vectors averaged over 5 degree boxes.

Fig	Parameter	Level/Layer
14	SATOB - Mean observed wind	1000-700 hPa
15	SATOB - Mean observed wind	400-150 hPa
16	SATOB - Mean observed minus first-guess wind	1000-700 hPa
17	SATOB - Mean observed minus first-guess wind	400-150 hPa
18	AIRCRAFT WIND - Mean observed minus first-guess	300-150 hPa

Table 12 provides quality statistics of aircraft wind observations stratified by airline carrier.

3.2.1 Figure 1 - Availability - SYNOP PRESSURE

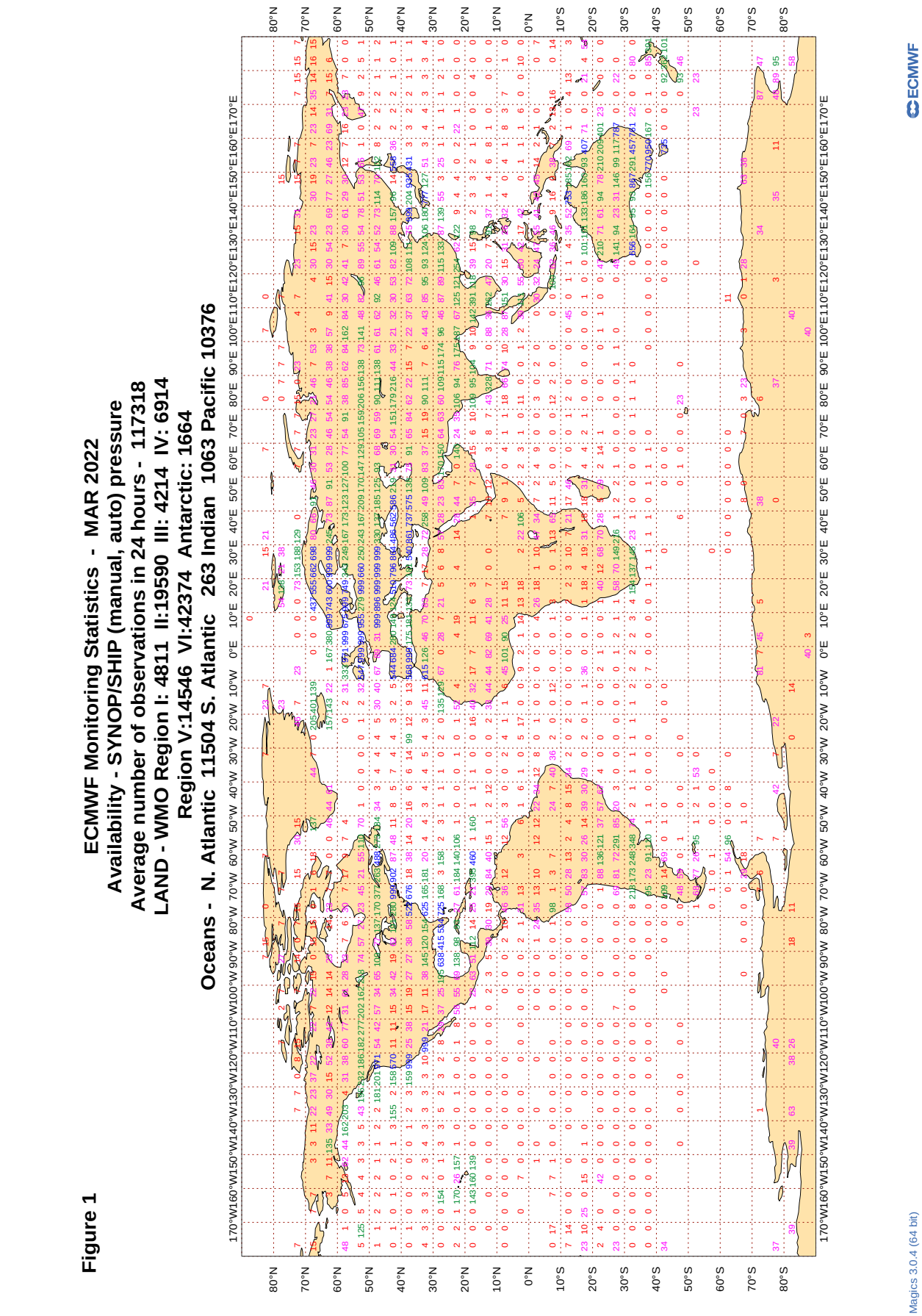


Figure 1

3.2.2 Figure 2 - Availability - DRIFTER PRESSURE

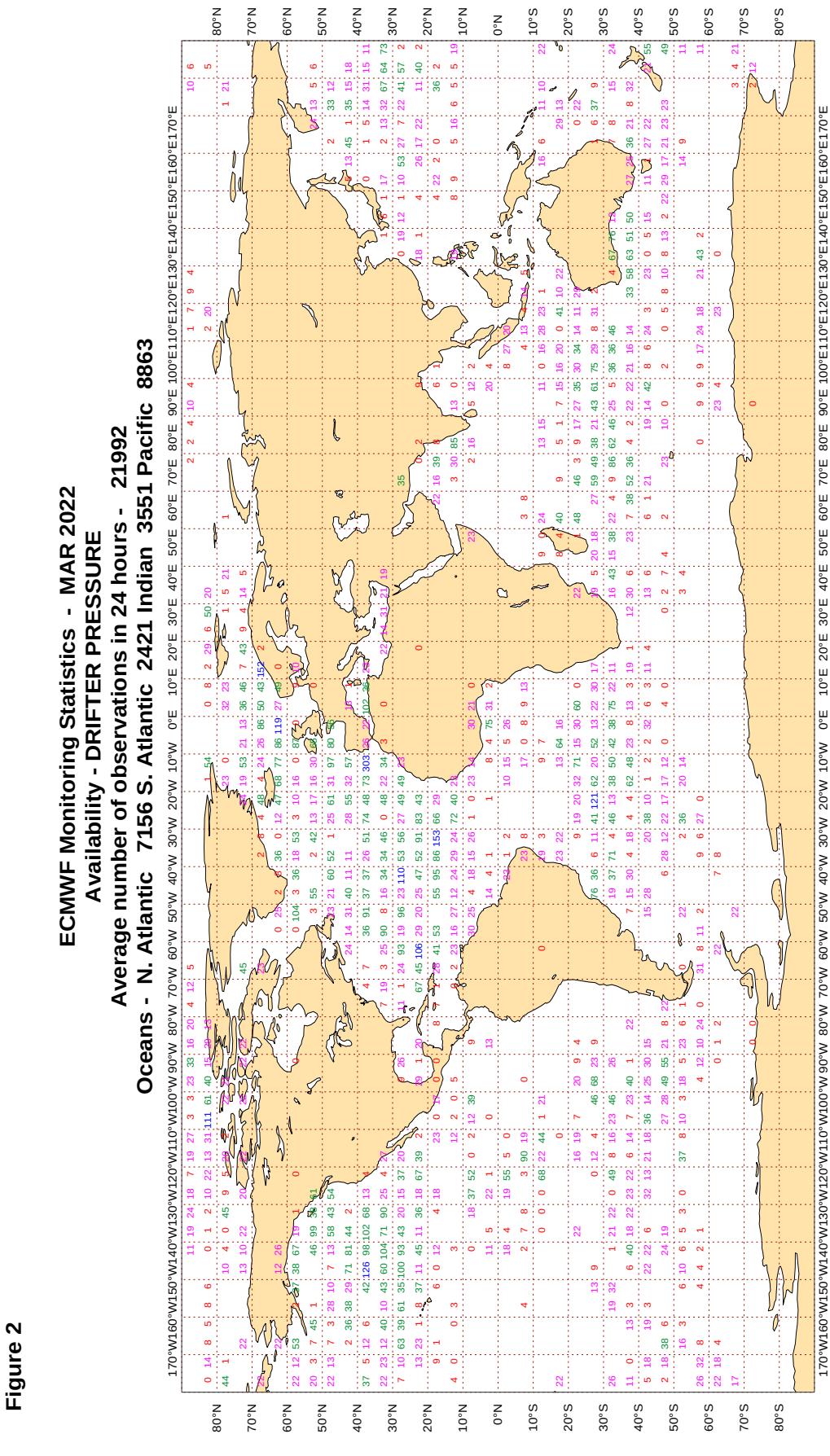


Figure 2

3.2.3 Figure 3 - Availability - TEMP 500 hPa geopotential

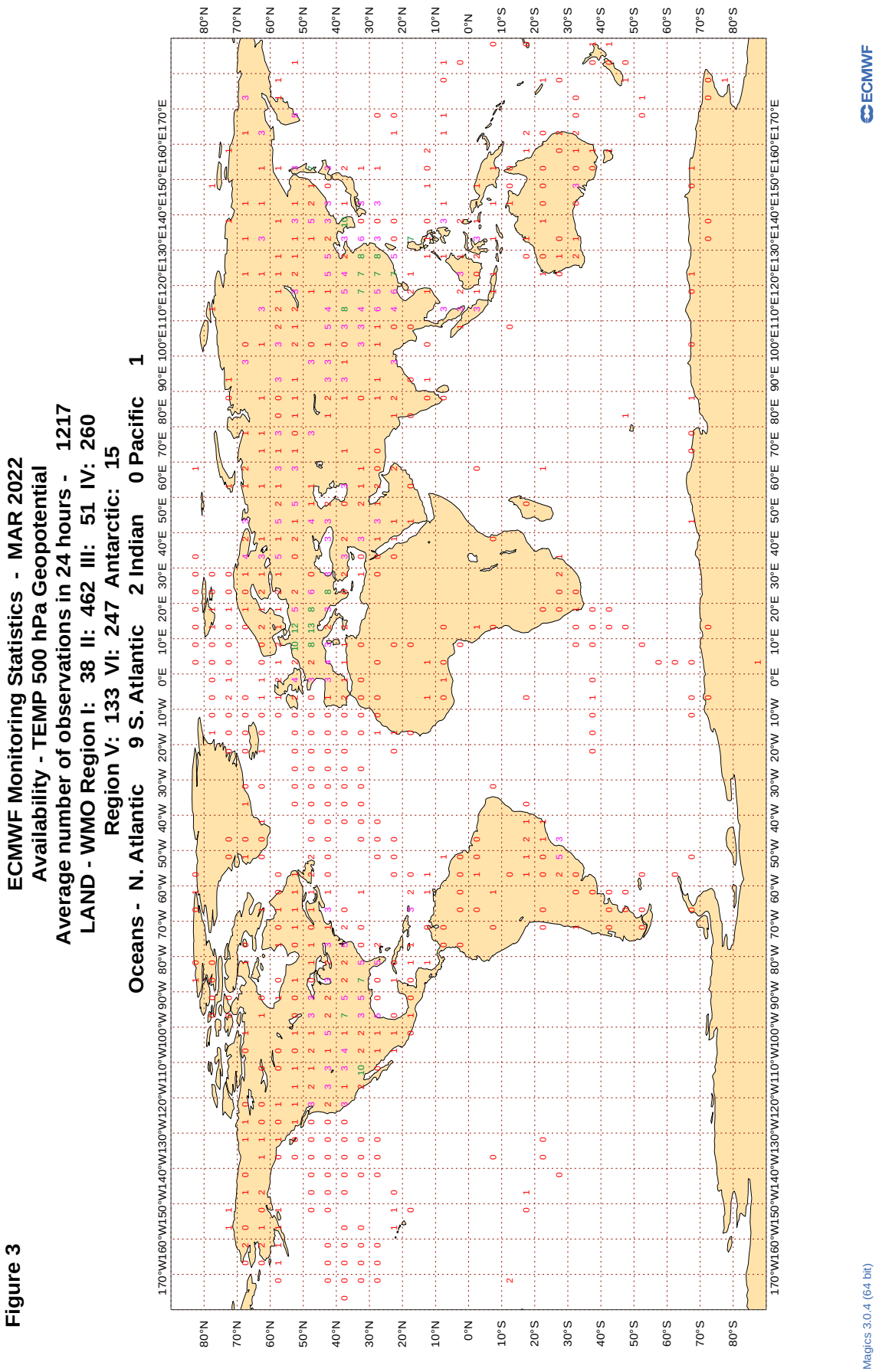


Figure 3

3.2.4 Figure 4 - Availability - TEMP/PILOT 300 hPa wind

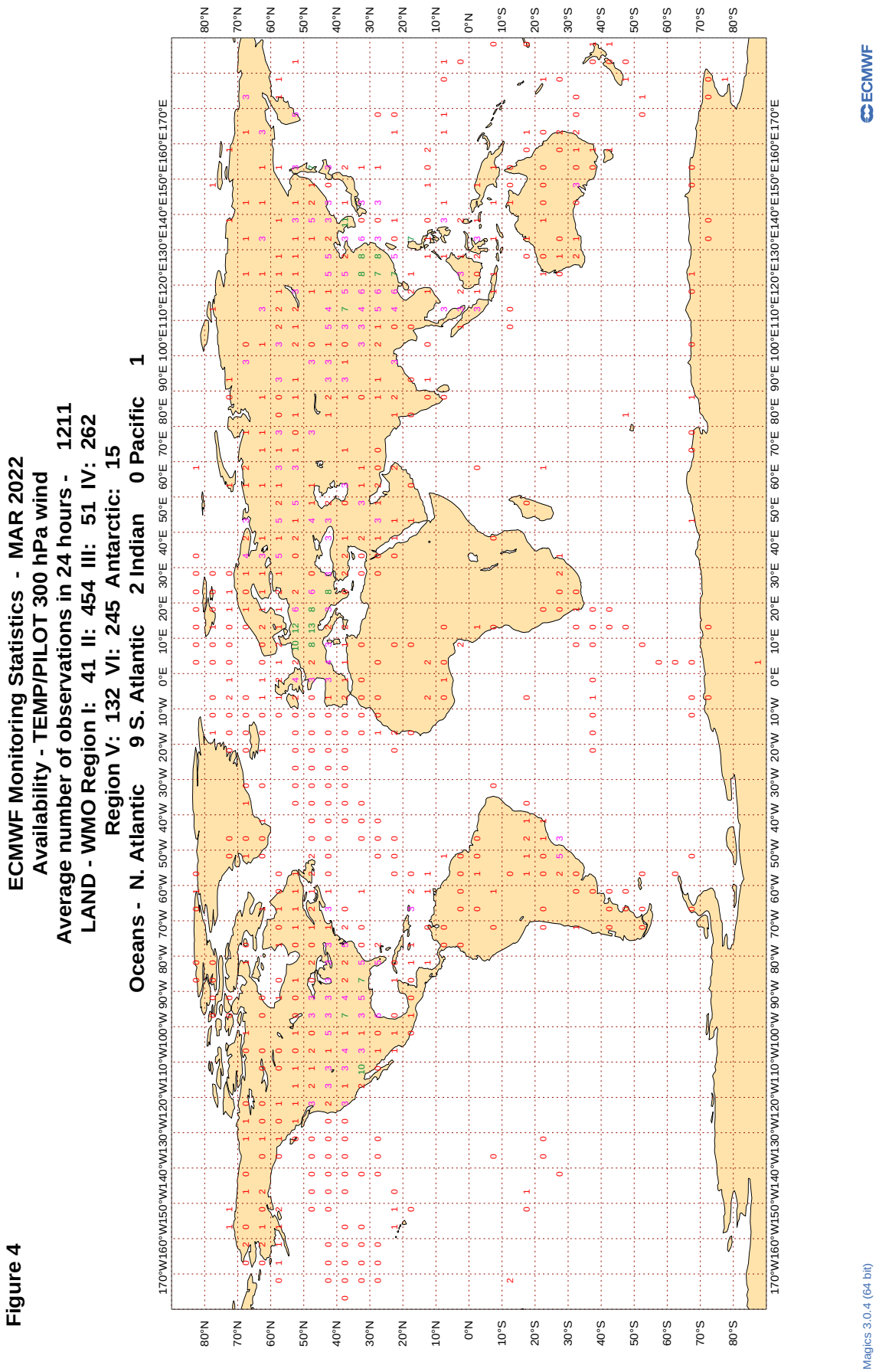


Figure 4

3.2.5 Figure 5 - Availability - AIRCRAFT winds 300-150 hPa

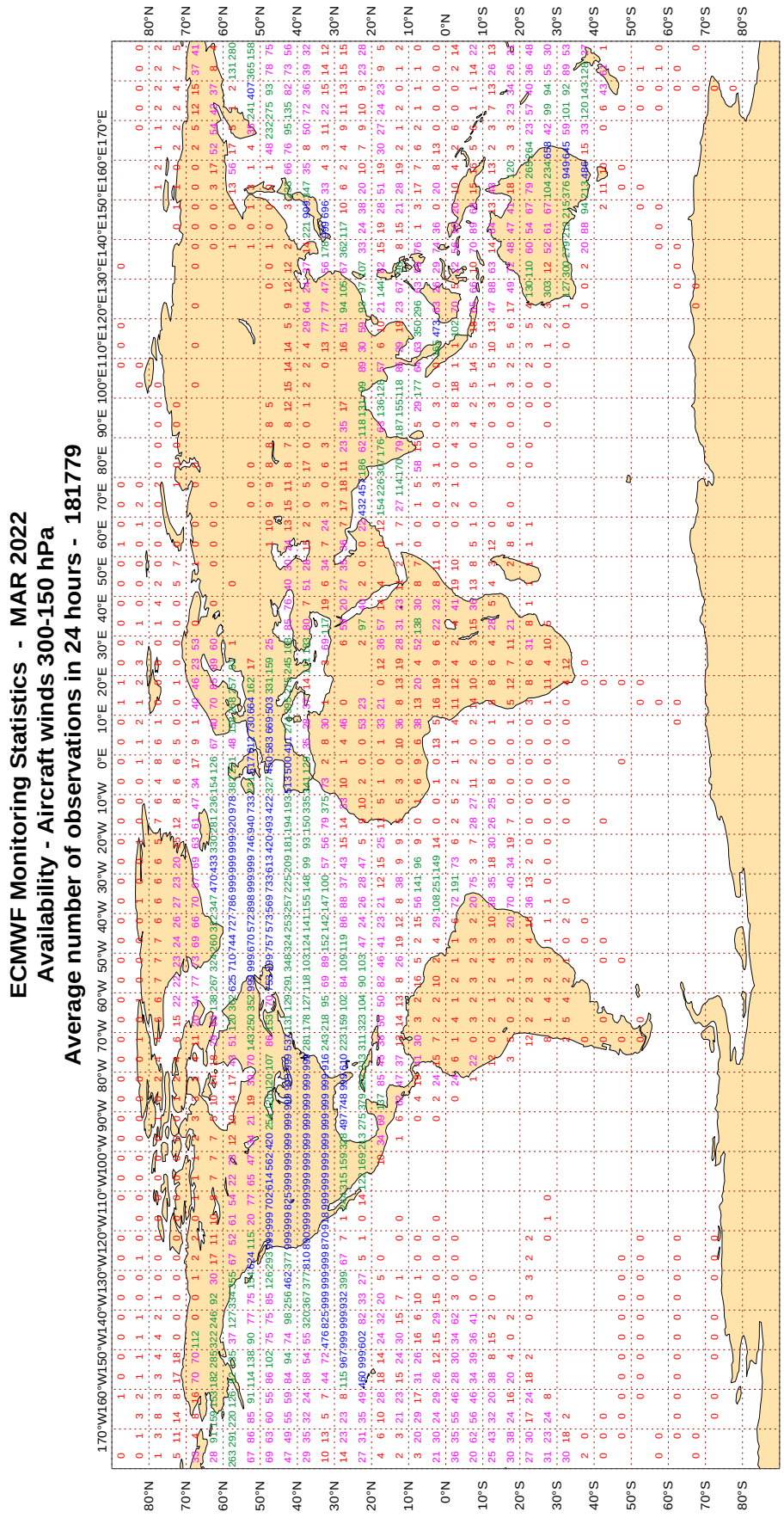


Figure 5

3.2.6 Figure 6 - Availability - SATOB winds 400-150 hPa

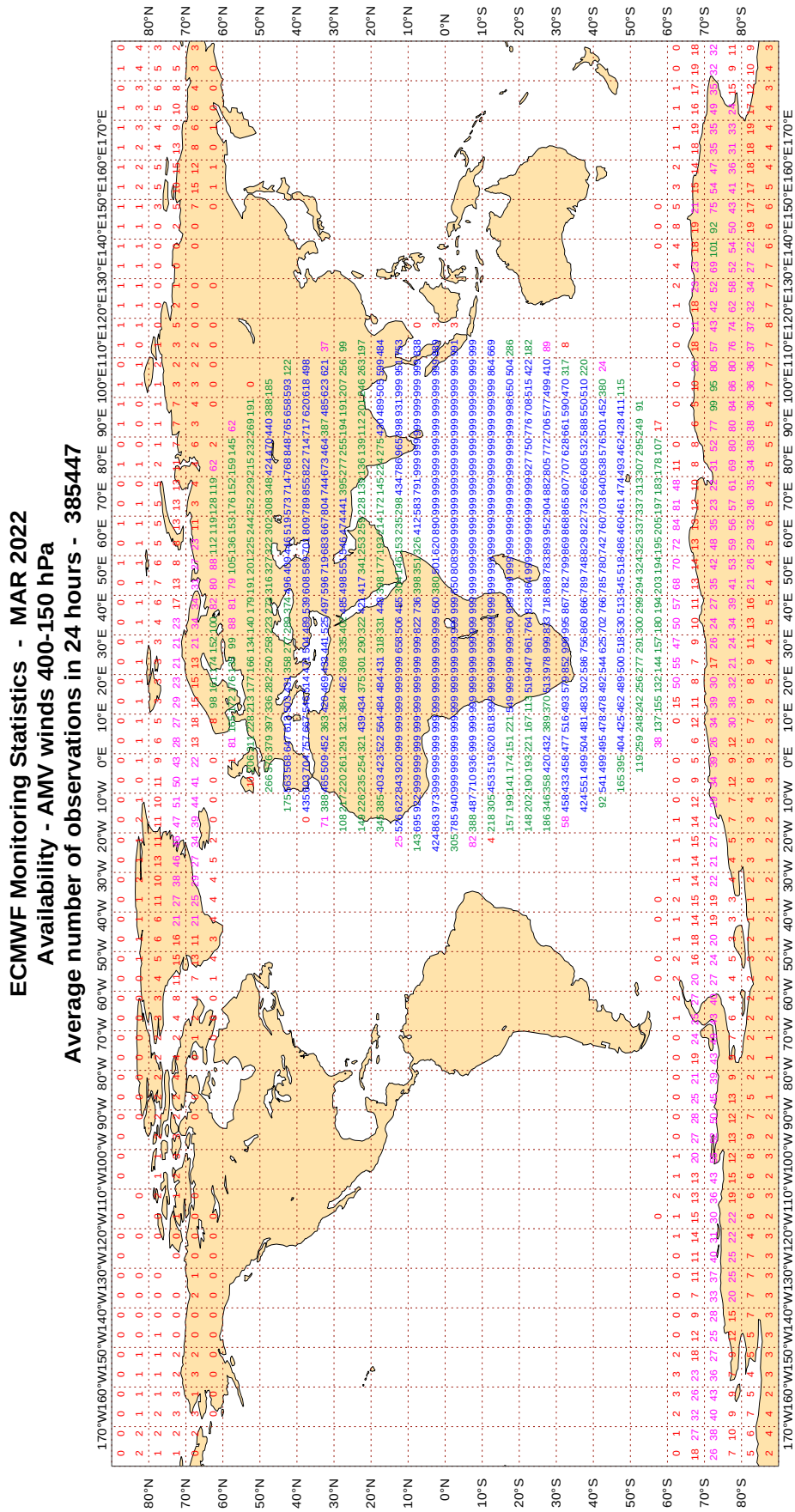


Figure 6

3.2.7 Figure 7 - Availability - SATOB winds 1000-700 hPa

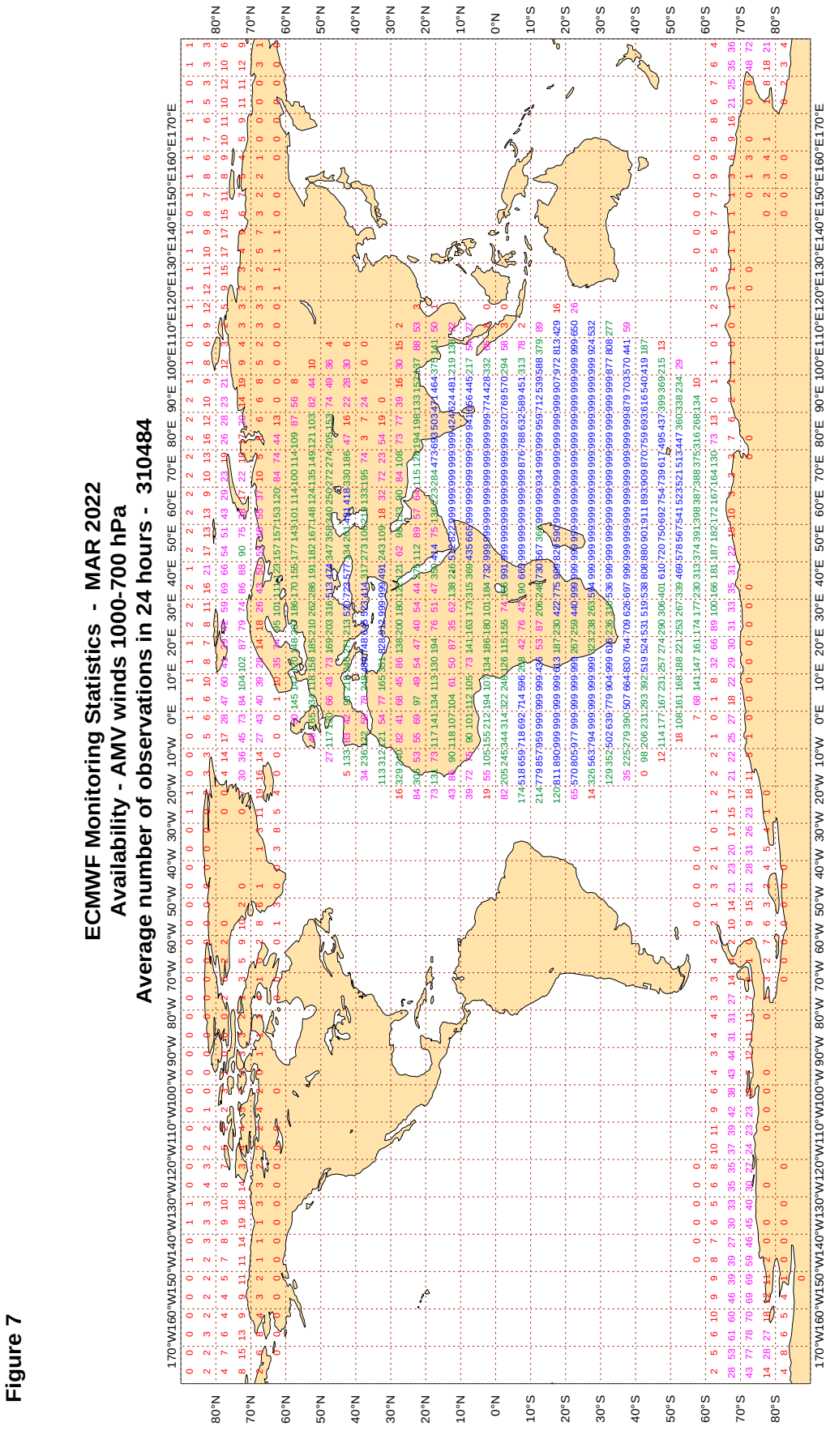


Figure 7

3.2.8 Figure 8 - Availability - NOAA15 ATOVS : AMSU-A

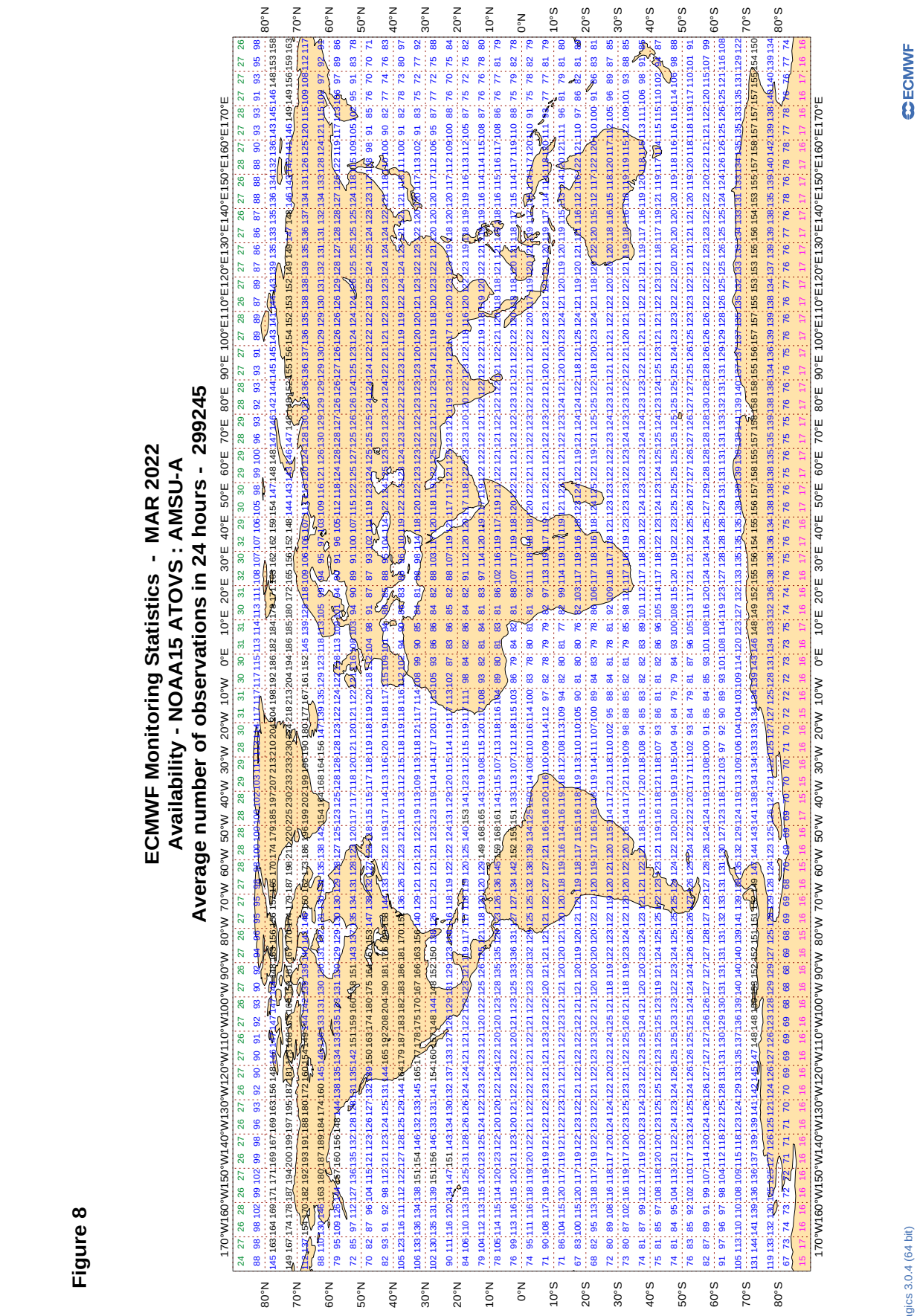
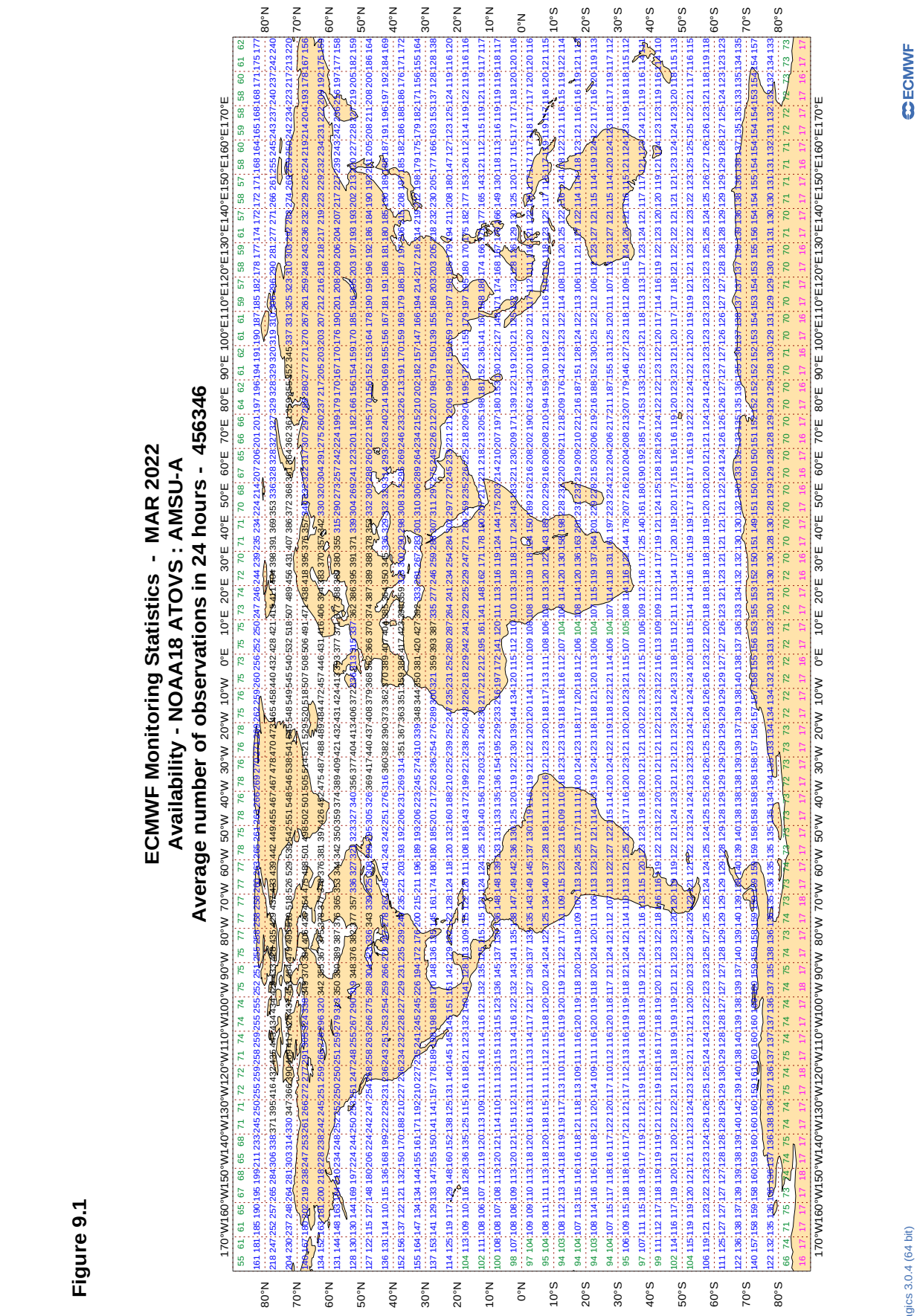


Figure 8

3.2.9 Figure 9.1 - Availability - NOAA18 ATOVS : AMSU-A



3.2.10 Figure 9.2 - Availability - AQUA ATOVS : AMSU-A

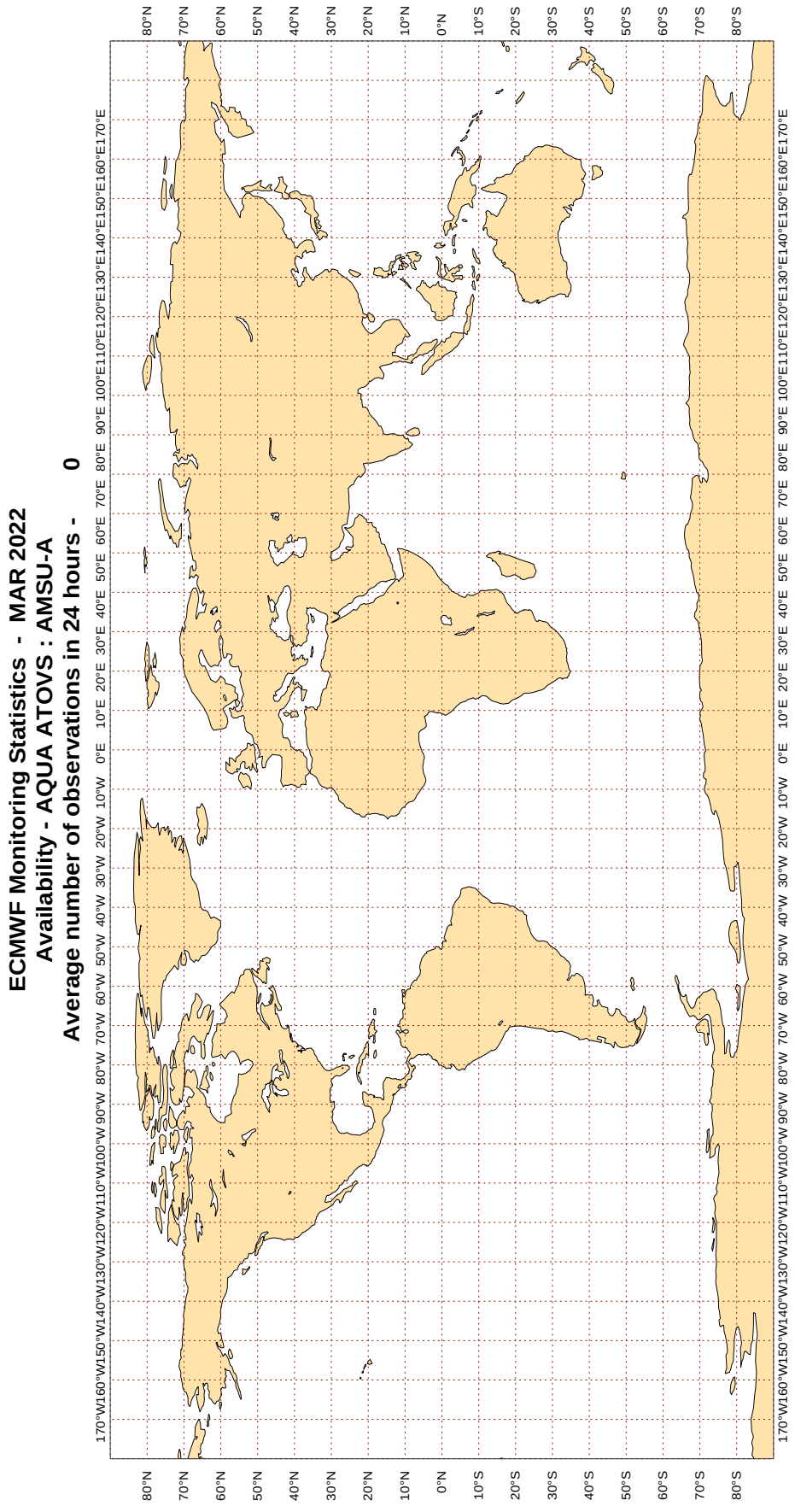


Figure 9.2

3.2.11 Figure 9.3 - Availability - METOP ATOVS : AMSU-A

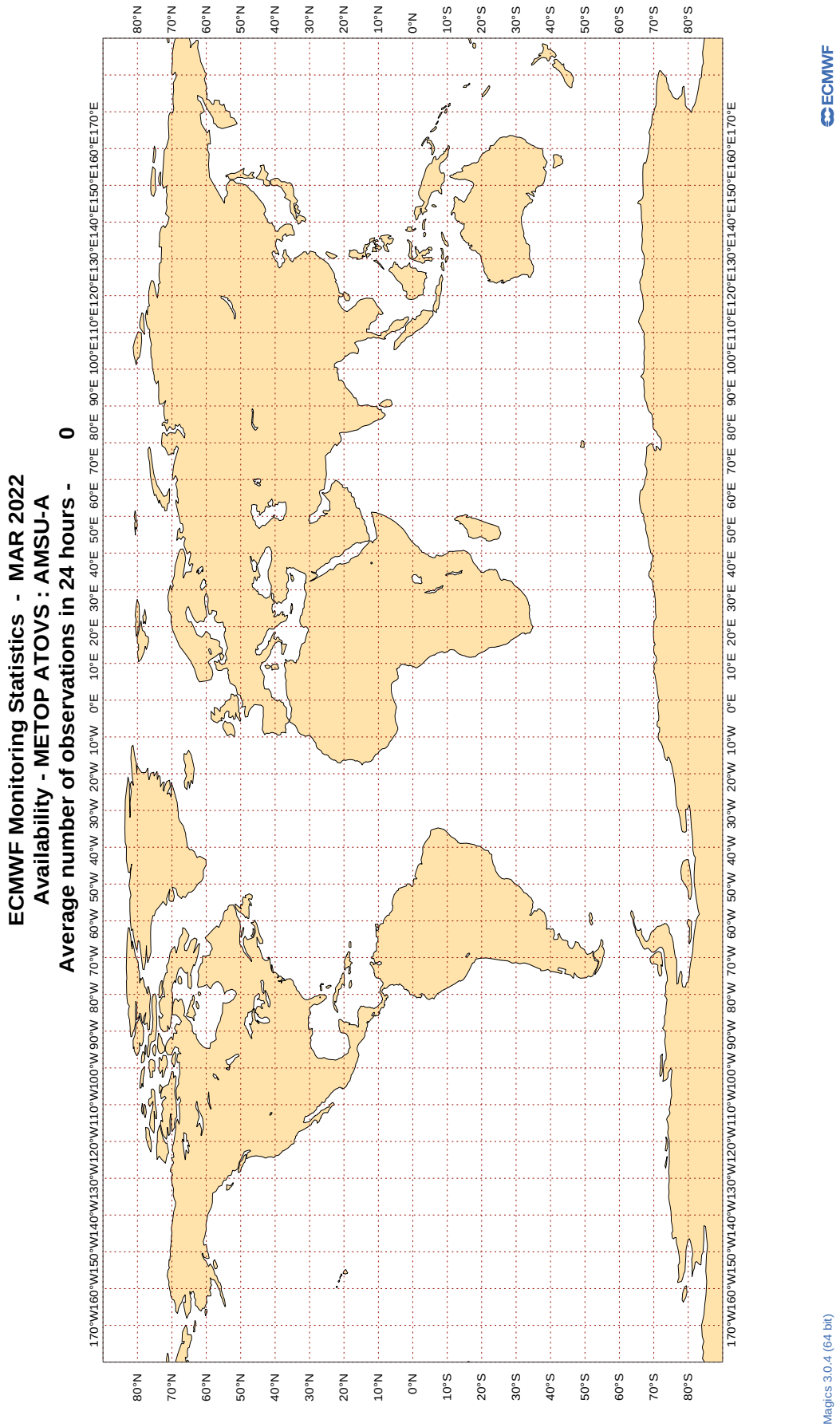


Figure 9.3

3.2.12 Table 1 - Suspect ships and fixed marine platforms: Surface pressure - (hPa)

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : SURFACE PRESSURE (HPA)
                    AREA                  : GLOBAL
                    PERIOD                : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: NO. OF OBS.           >= 15(50), AND,
Manual (Automatic)  ABSOLUTE BIAS         >= 3(2) HPA, OR,
                    STANDARD DEVIATION    >= 5(4) HPA, OR,
                    % GROSS ERROR         >= 25(15)
                    (GROSS ERROR LIMIT = 15 HPA)

TIME = 99 => AVERAGE OF 00, 06, 12 AND 18 UTC OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
2HDG3	99	P	SUR	79	0	1.8	4.6	5.0
3FCE9	99	P	SUR	21	0	0.5	4.7	4.7
3FFA5	99	P	SUR	43	0	2.2	6.2	6.5
3FWH8	99	P	SUR	36	0	1.1	6.5	6.6
4XFC	99	P	SUR	51	0	1.7	7.7	7.9
9HA2006	99	P	SUR	36	0	4.2	-3.1	5.2
9HA4048	99	P	SUR	36	36	0.0	0.0	0.0
9HA4330	99	P	SUR	15	0	0.9	-4.8	4.9
9HA4612	99	P	SUR	55	0	1.0	3.5	3.7
9HA5209	99	P	SUR	136	23	1.4	13.6	13.7
9HJB9	99	P	SUR	31	0	2.5	3.2	4.1
9V3865	99	P	SUR	37	0	1.4	-3.3	3.6
9V5669	99	P	SUR	48	0	1.5	4.8	5.0
9V6249	99	P	SUR	30	0	1.1	-3.0	3.2
9V6416	99	P	SUR	228	1	3.2	4.5	5.5
9V8776	99	P	SUR	126	0	4.3	5.9	7.3
9V8838	99	P	SUR	52	0	3.2	5.0	5.9
9V9290	99	P	SUR	39	0	2.6	4.8	5.5
9V9365	99	P	SUR	15	0	0.7	3.4	3.4
9V9403	99	P	SUR	16	0	3.0	-4.1	5.1
9V9916	99	P	SUR	23	0	1.1	8.0	8.0
9VBN2	99	P	SUR	44	0	2.2	5.9	6.3
ATVK	99	P	SUR	135	122	6.5	5.8	8.7
BKIC	99	P	SUR	180	45	1.0	13.5	13.5
BKIY	99	P	SUR	74	0	0.6	4.7	4.7
BKIZ	99	P	SUR	129	0	0.8	4.5	4.5
C6CV5	99	P	SUR	26	0	0.8	-3.0	3.1
C6DP6	99	P	SUR	51	0	2.4	4.0	4.7
C6DQ2	99	P	SUR	18	0	0.9	-4.3	4.4
C6FR3	99	P	SUR	61	0	5.3	-2.8	6.0
C6LG6	99	P	SUR	176	0	0.5	-4.7	4.7
C6TQ6	99	P	SUR	30	0	3.1	-4.6	5.6

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : SURFACE PRESSURE (HPA)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
CCGV	99	P	SUR	15	0	1.3	-3.2	3.5
CFN5517	99	P	SUR	16	0	1.6	-4.3	4.6
CQOL	99	P	SUR	22	0	1.6	3.4	3.8
D5KR2	99	P	SUR	19	0	0.4	-3.2	3.2
D5UO7	99	P	SUR	19	0	1.4	7.2	7.4
JMJRCES	99	P	SUR	185	0	1.7	-5.8	6.0
KIAB	99	P	SUR	111	0	1.2	6.2	6.3
LAHR7	99	P	SUR	128	0	1.2	3.5	3.7
LAOL5	99	P	SUR	18	0	1.2	4.7	4.9
LAQM7	99	P	SUR	58	0	0.5	5.7	5.7
MCMB8	99	P	SUR	26	0	1.4	4.5	4.7
MJKZ4	99	P	SUR	35	0	1.0	3.4	3.5
OUJS2	99	P	SUR	17	0	0.7	3.1	3.2
OXBA2	99	P	SUR	16	0	1.2	-3.3	3.5
OZ2049	99	P	SUR	81	1	0.9	-9.4	9.5
PBKH	99	P	SUR	54	0	2.9	3.5	4.6
PINX	99	P	SUR	42	0	0.4	-4.0	4.0
S6LT3	99	P	SUR	24	0	1.7	5.7	5.9
SJA4RSK	99	P	SUR	44	0	0.6	-4.9	4.9
UAST	99	P	SUR	20	4	0.7	-13.4	13.4
UASX	99	P	SUR	36	0	1.9	-7.0	7.2
UBM09	99	P	SUR	23	0	1.7	-3.7	4.0
UBSH	99	P	SUR	62	1	5.2	-5.6	7.7
UBUO6	99	P	SUR	37	0	1.3	-3.0	3.3
UCEE	99	P	SUR	49	36	3.2	-0.9	3.4
UCQX	99	P	SUR	106	86	1.7	13.2	13.3
V7A2319	99	P	SUR	107	0	1.3	3.7	3.9
V7A5144	99	P	SUR	61	0	1.3	-4.3	4.5
V7FA7	99	P	SUR	83	0	1.3	4.5	4.7
V7FB3	99	P	SUR	15	0	6.1	10.5	12.1
V7QS7	99	P	SUR	157	0	1.5	-5.9	6.1
V7TM3	99	P	SUR	38	0	2.1	-4.5	4.9
V7TN7	99	P	SUR	47	0	1.4	-3.0	3.3
V7UU6	99	P	SUR	21	0	5.1	-1.5	5.3
VDRU8	99	P	SUR	38	0	1.0	-5.1	5.2
VRBN8	99	P	SUR	22	0	1.9	3.5	4.0
VRCI9	99	P	SUR	28	2	2.4	3.8	4.5
VRCZ7	99	P	SUR	20	0	1.4	3.3	3.5
VRDB3	99	P	SUR	35	0	0.9	-4.6	4.7
VRFS2	99	P	SUR	30	0	3.6	6.5	7.4
VRIB2	99	P	SUR	25	0	2.0	5.5	5.9

LIST OF SUSPECT STATIONS : SHIPS + FIXED MARINE PLATFORMS
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : SURFACE PRESSURE (HPA)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	SD	BIAS	RMS
VRLI7	99	P	SUR	41	0	2.8	3.2	4.3
VRLJ3	99	P	SUR	28	0	0.6	3.8	3.8
VRMX7	99	P	SUR	55	0	1.2	6.8	6.9
VRNR6	99	P	SUR	29	0	0.5	-6.1	6.1
VROO4	99	P	SUR	18	0	1.1	6.8	6.9
VRRB6	99	P	SUR	258	0	1.9	-3.9	4.4
VRRP7	99	P	SUR	20	0	0.5	-4.5	4.5
VRSO6	99	P	SUR	16	0	0.5	3.4	3.4
WDC3031	99	P	SUR	42	2	2.6	5.0	5.7
WHDV	99	P	SUR	161	0	0.6	-3.2	3.2
WRJP	99	P	SUR	22	0	0.8	4.4	4.5
ZCDT2	99	P	SUR	15	0	1.8	3.5	3.9
ZGFB4	99	P	SUR	17	0	0.4	-3.8	3.8
ZGFY4	99	P	SUR	71	2	1.0	-12.3	12.3

3.2.13 Table 2 - Suspect ships and fixed marine platforms: Wind speed (m/s)

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND SPEED (M/S)
                    AREA                  : GLOBAL
                    PERIOD                : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: NO. OF OBS.           >= 15(50), AND,
Manual (Automatic)  ABSOLUTE BIAS         >= 4(4) M/S, OR,
                    % GROSS ERROR         >= 25(15)
                    (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)


TIME = 99 => AVERAGE OF 00, 06, 12 AND 18 UTC OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
46185	99	SPEED	SUR	53	0	0	2.6	-5.7	6.3

3.2.14 Table 3 - Suspect ships and fixed marine platforms: Wind direction (DEGREES)

```
          LIST OF SUSPECT STATIONS        : SHIPS + FIXED MARINE PLATFORMS
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: NO. OF OBS.           >= 15(50) (WIND SPEEDS > 3M/S), AND ,
Manual (Automatic)  ABSOLUTE BIAS         >= 30(25) DEGREES, OR,
                    STANDARD DEVIATION    >= 70(50) DEGREES
                    (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)


TIME = 99 => AVERAGE OF 00, 06, 12 AND 18 UTC OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42019	99	DIRN	SUR	585	2	0	101.1	61.0	118.1
44025	99	DIRN	SUR	426	1	0	96.6	-55.3	111.3
46015	99	DIRN	SUR	497	29	0	115.2	-2.7	115.3
46069	99	DIRN	SUR	300	0	0	36.0	-43.2	56.2
46072	99	DIRN	SUR	402	10	0	88.5	-12.2	89.4
46080	99	DIRN	SUR	230	7	0	115.7	38.0	121.8
46303	99	DIRN	SUR	139	0	0	22.6	62.5	66.4

3.2.15 Table 4 - Suspect drifters: Surface pressure (HPA)

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
                    AREA                   : GLOBAL
                    PERIOD                 : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: NO. OF OBS.            >= 20, AND,
                    ABSOLUTE BIAS          >= 4 HPA, OR,
                    STANDARD DEVIATION     >= 6 HPA, OR,
                    % GROSS ERROR          >= 25
                    (GROSS ERROR LIMIT = 15 HPA)

TIME = 99 => AVERAGE OF ALL OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
2302618	99	P	SUR	2	87	634	302	9.5	-4.9	10.7
4601783	99	P	SUR	54	-138	503	412	0.9	0.8	1.2
4601797	99	P	SUR	53	174	207	149	9.1	-0.9	9.1
4602507	99	P	SUR	55	-155	492	72	2.1	11.6	11.8
4701658	99	P	SUR	72	-95	724	724	0.0	0.0	0.0
4701735	99	P	SUR	72	-120	719	719	0.0	0.0	0.0
4701738	99	P	SUR	70	-67	723	723	0.0	0.0	0.0
4701744	99	P	SUR	80	-100	741	741	0.0	0.0	0.0
4801670	99	P	SUR	86	-134	712	537	8.0	0.2	8.0
5201726	99	P	SUR	39	-177	729	81	4.5	5.9	7.5
6101009	99	P	SUR	35	25	22	22	0.0	0.0	0.0
6203585	99	P	SUR	76	51	61	55	1.0	-13.4	13.5
6402545	99	P	SUR	79	6	258	80	5.9	5.1	7.8
6402548	99	P	SUR	80	8	645	53	5.8	5.7	8.2
6402587	99	P	SUR	53	-51	617	18	3.4	8.5	9.2
6402656	99	P	SUR	56	-42	603	5	3.4	7.6	8.3
6501689	99	P	SUR	81	28	2151	313	7.0	-0.7	7.0

3.2.16 Table 5 - Suspect drifters: Wind speed (m/s)

```
          LIST OF SUSPECT STATIONS        : DRIFTER
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND SPEED (M/S)
                    AREA                  : GLOBAL
                    PERIOD                : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: NO. OF OBS.           >= 20, AND,
                    ABSOLUTE BIAS         >= 5 M/S, OR,
                    % GROSS ERROR         >= 25
                    (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)


TIME = 99 => AVERAGE OF ALL OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
46185	99	SPEED	SUR	52	-130	99	0	0	2.5	-5.7	6.3

3.2.17 Table 6 - Suspect drifters: Wind direction (degrees)

```
          LIST OF SUSPECT STATIONS         : DRIFTER
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : WIND DIRECTION (DEGREES)
                    PERIOD                 : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: NO. OF OBS.            >= 20 (WIND SPEEDS > 3M/S), AND ,
                    ABSOLUTE BIAS          >= 20 DEGREES, OR,
                    STANDARD DEVIATION     >= 60 DEGREES
                    (GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S)


TIME = 99 => AVERAGE OF ALL OBSERVATIONS
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
1300008	99	DIRN	SUR	15	-38	602	0	0	110.8	0.8	110.8
1300131	99	DIRN	SUR	28	-17	314	0	0	77.5	-71.6	105.5
1500008	99	DIRN	SUR	-20	-10	64	0	0	20.2	-39.9	44.7
2200298	99	DIRN	SUR	35	125	574	0	0	24.4	-32.2	40.4
23093	99	DIRN	SUR	16	88	119	0	0	15.5	21.3	26.3
23099	99	DIRN	SUR	13	80	377	0	0	119.0	-21.0	120.8
23451	99	DIRN	SUR	15	69	87	0	0	18.2	20.8	27.7
23452	99	DIRN	SUR	12	69	32	0	0	28.1	29.6	40.8
23491	99	DIRN	SUR	12	93	38	0	0	86.0	37.2	93.8
23497	99	DIRN	SUR	11	72	76	0	0	99.5	-25.7	102.8
42019	99	DIRN	SUR	28	-95	1076	3	0	101.7	60.8	118.5
44025	99	DIRN	SUR	40	-73	984	8	0	95.0	-55.1	109.8
44139	99	DIRN	SUR	44	-57	810	0	0	26.7	22.5	34.9
4600081	99	DIRN	SUR	61	-148	280	0	0	26.7	25.1	36.6
46015	99	DIRN	SUR	43	-125	915	58	0	113.5	0.2	113.5
46069	99	DIRN	SUR	34	-120	662	0	0	39.1	-43.8	58.7
46072	99	DIRN	SUR	52	-172	738	17	0	87.0	-12.8	87.9
46073	99	DIRN	SUR	55	-172	147	4	0	83.3	18.6	85.3
46080	99	DIRN	SUR	58	-150	440	18	0	117.9	38.3	123.9
46081	99	DIRN	SUR	61	-148	580	0	0	24.8	24.3	34.7
46146	99	DIRN	SUR	49	-124	590	0	0	28.3	26.0	38.4
46303	99	DIRN	SUR	49	-123	577	0	0	22.8	62.4	66.4
5200001	99	DIRN	SUR	2	165	673	0	0	16.4	25.9	30.7
52001	99	DIRN	SUR	2	165	667	0	0	16.6	25.9	30.8
6200086	99	DIRN	SUR	55	6	324	0	0	12.6	24.7	27.7
6201065	99	DIRN	SUR	54	7	79	2	0	95.0	61.4	113.2
62129	99	DIRN	SUR	58	0	969	0	0	8.8	24.5	26.0
62140	99	DIRN	SUR	57	1	2307	0	0	33.1	-21.2	39.4
6301003	99	DIRN	SUR	74	24	672	0	0	13.9	21.7	25.8
6301004	99	DIRN	SUR	72	20	678	0	0	11.9	20.4	23.6

3.2.18 Table 7 - Suspect radiosondes: Geopotential height (metres)

```
          LIST OF SUSPECT STATIONS         : RADIOSONDES
                    MONITORING CENTRE      : ECMWF
                    ELEMENT MONITORED      : GEOPOTENTIAL HEIGHT (METRES)
                    AREA                   : GLOBAL
                    PERIOD                 : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: AT LEAST 3 LEVELS WITH
                    10 OBS AND 100 M WEIGHTED RMS


ONLY THE WORST LEVEL IS SHOWN (WITH UNWEIGHTED RMS)
```

WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
01400	00	Z	1000	57	3	31	0	15.0	73.8	75.3
01400	12	Z	1000	57	3	28	0	3.9	76.3	76.4
21432	12	Z	250	76	138	29	0	21.0	-69.7	72.8
29282	12	Z	200	58	97	31	0	54.2	-60.3	81.1
30557	00	Z	150	54	114	11	2	125.0	128.7	179.4
30557	12	Z	300	54	114	20	0	77.1	97.9	124.6
38064	12	Z	250	45	66	30	0	36.7	74.0	82.6
38064	00	Z	250	45	66	29	1	31.5	68.3	75.2
40437	00	Z	925	24	44	30	0	7.4	34.2	35.0
40437	12	Z	925	24	44	30	2	8.2	37.0	37.9
42647	12	Z	700	23	73	31	11	27.6	-77.2	82.0
42647	00	Z	700	23	73	30	8	32.7	-76.6	83.3
42701	00	Z	30	23	85	12	0	135.5	102.7	170.0
43150	00	Z	1000	18	83	30	0	3.4	58.3	58.4
43371	00	Z	1000	8	77	28	0	4.3	47.1	47.3
54374	00	Z	50	42	127	30	0	104.8	115.8	156.2
55591	12	Z	50	30	91	25	0	67.0	156.8	170.5
61415	00	Z	700	21	-17	19	18	0.0	-97.1	97.1
64500	00	Z	850	0	9	18	0	51.6	-14.6	53.6
64500	12	Z	850	0	9	17	2	52.5	9.1	53.3
97072	12	Z	925	-1	120	30	0	41.8	47.4	63.2
97072	00	Z	1000	-1	120	30	0	45.7	47.6	66.0
98233	12	Z	1000	18	122	29	0	31.6	17.6	36.2
98233	00	Z	1000	18	122	29	0	23.0	52.5	57.3
98558	12	Z	925	11	126	17	0	25.1	-32.2	40.8
98558	00	Z	925	11	126	12	0	27.1	-31.0	41.2
JNKN7J	12	Z	1000	39	-74	13	0	6.9	38.9	39.5
JNKN7J	00	Z	1000	40	-70	10	0	5.0	40.9	41.2

3.2.19 Table 8 - Suspect radiosondes: Wind (m/s)

```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND (M/S)
                    AREA                  : GLOBAL
                    PERIOD                : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD

SELECTION CRITERIA: AT LEAST 10 OBS AND 15 M/S RMS VECTOR WIND

STANDARD LEVEL (1000-100 HPA) WITH HIGHEST RMS IS SHOWN
```

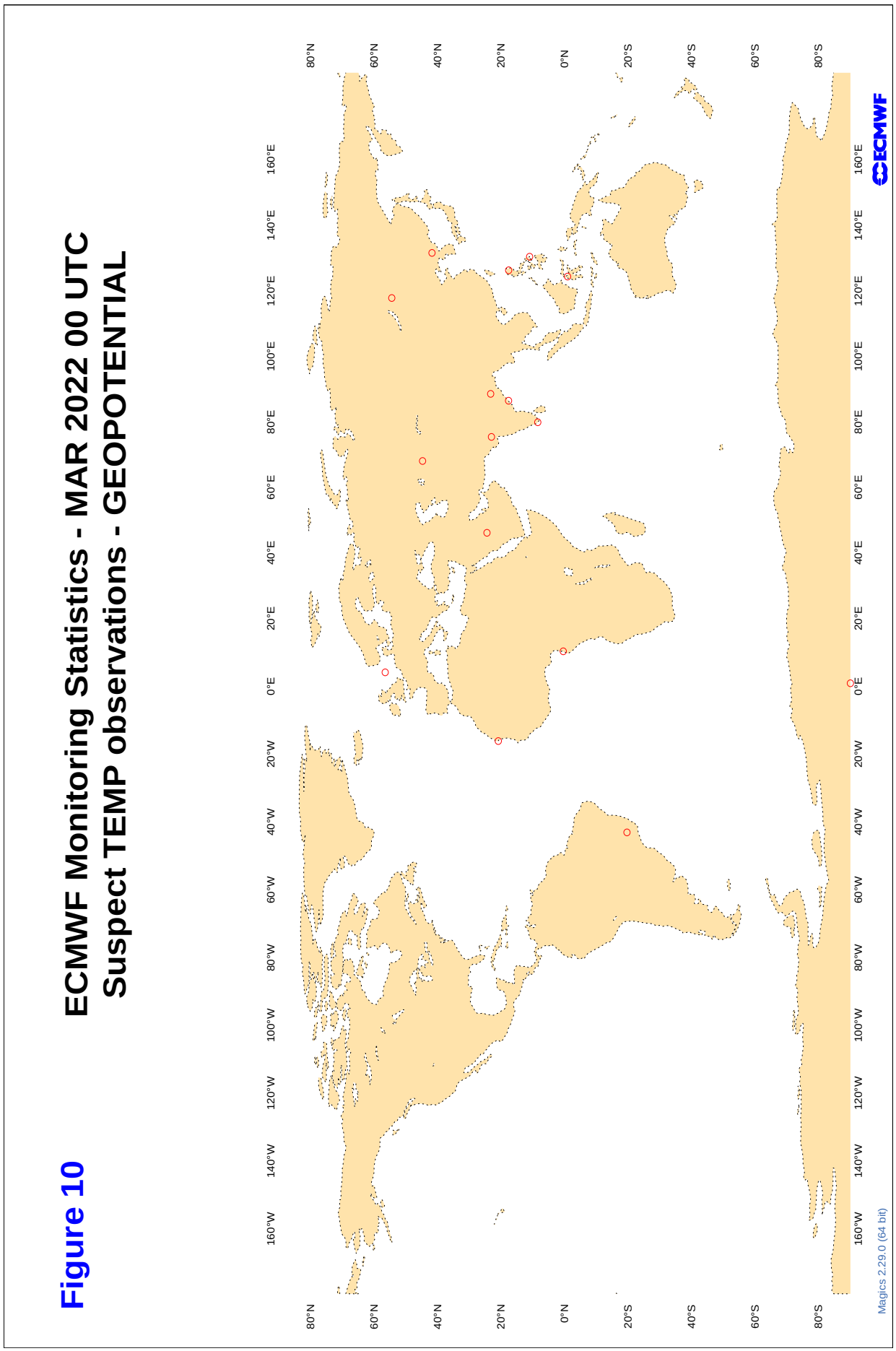
WMO IDENT	OBS TIME	ELM	LEV	LAT	LONG	NUM OBS	NUM GROSS	UBIAS	VBIAS	RMS
61442	12	V	925	18	-16	23	8	-14.4	-12.6	26.7
61442	00	V	925	18	-16	24	5	-10.1	-9.8	22.9

3.2.20 Table 9 - Suspect radiosondes: Wind direction (degrees)

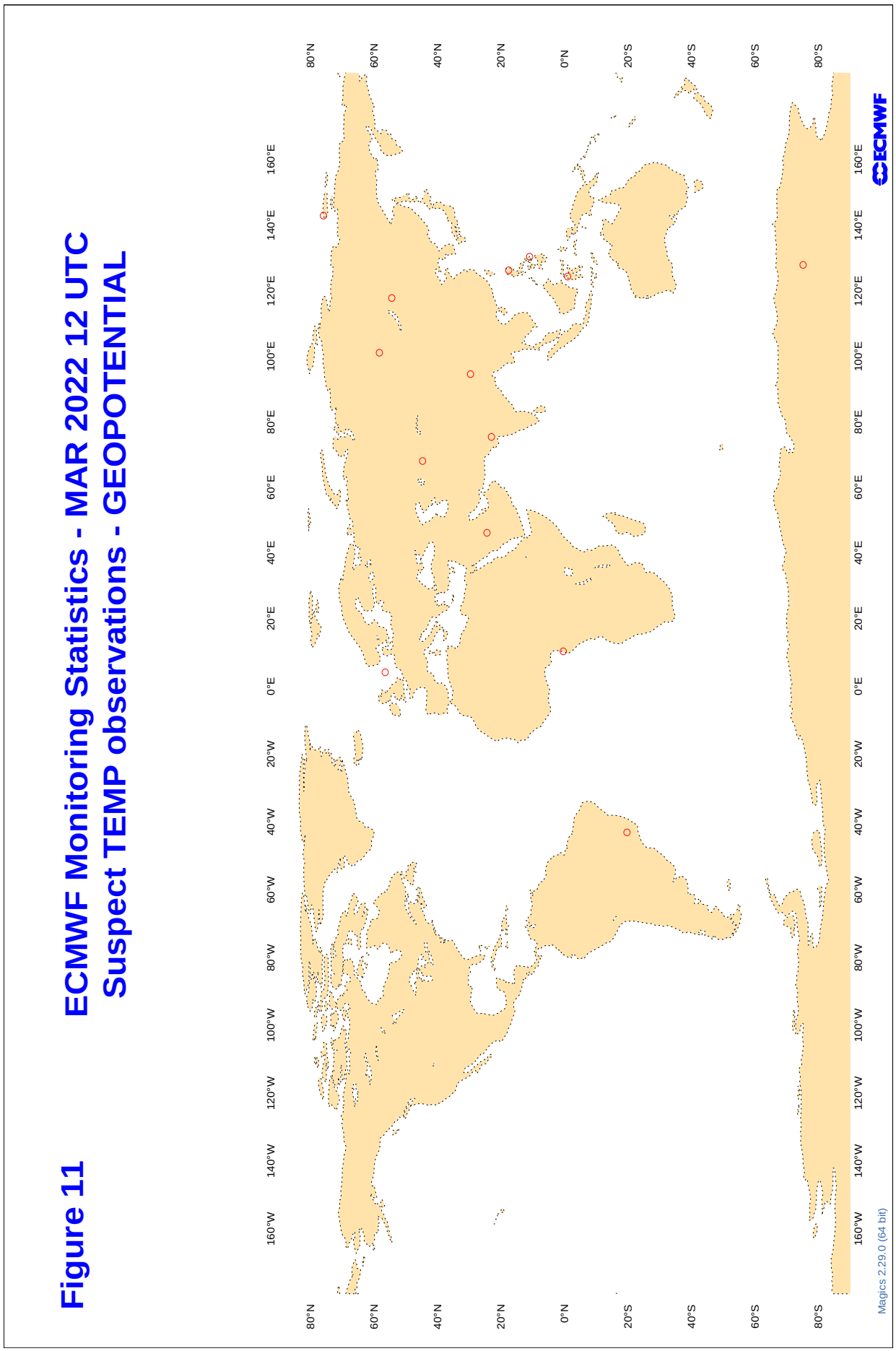
```
          LIST OF SUSPECT STATIONS        : RADIOSONDES
                    MONITORING CENTRE     : ECMWF
                    ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                    AREA                  : GLOBAL
                    PERIOD                : MAR 2022
                    STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: OBSERVED/FORECAST WIND SPEEDS >= 5 M/S
                    NO. OF OBSERVATIONS   >= 5, AND,
                    ABSOLUTE BIAS         >= 10 DEGREES, WITH
                    STANDARD DEVIATION    <  30 DEGREES, AND,
                    VERTICAL SPREAD       < 10 DEGREES
                    (AVERAGE BETWEEN 500 AND 150 HPA)
```

WMO IDENT	OBS TIME	ELM	LAT	LONG	NUM OBS	BIAS	MAX SPREAD	SD
43371	00	DD	8	77	21	-10.8	8.7	17.5

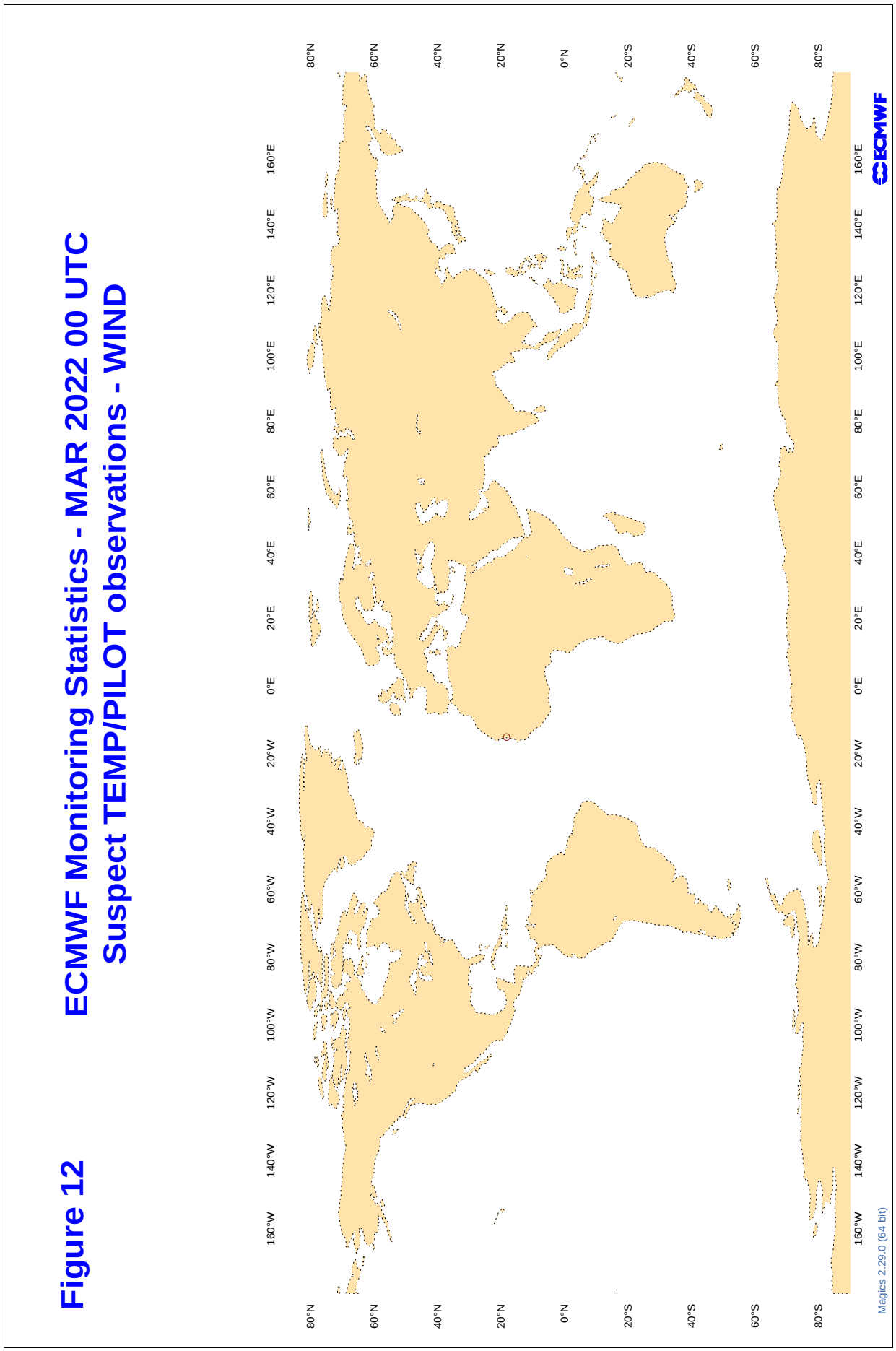
3.2.21 Figure 10 - Suspect TEMP observations - geopotential : 00 UTC



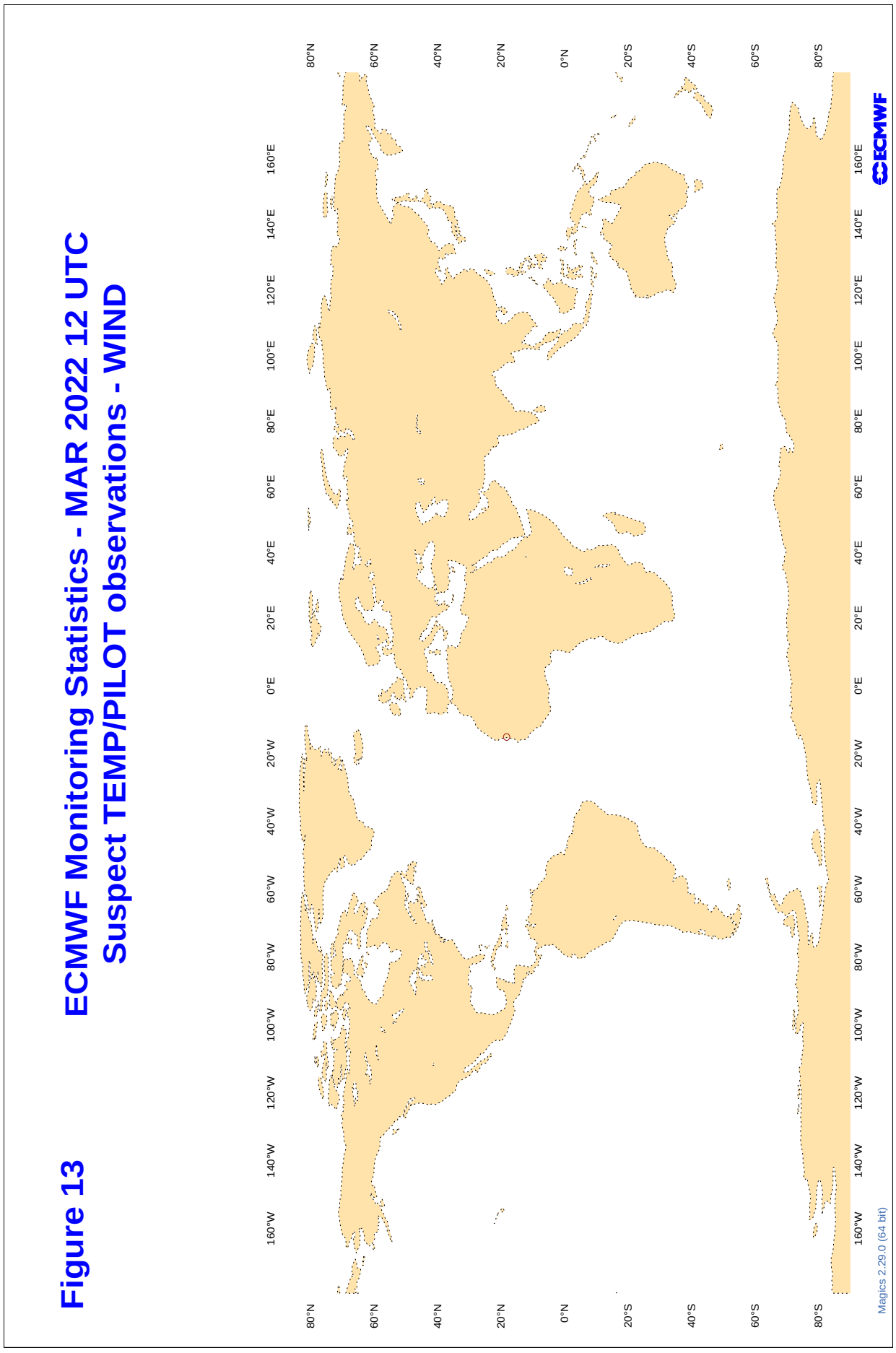
3.2.22 Figure 11 - Suspect TEMP observations - geopotential : 12 UTC



3.2.23 Figure 12 - Suspect TEMP/PILOT observations - wind : 00 UTC



3.2.24 Figure 13 - Suspect TEMP/PILOT observations - wind : 12 UTC



3.2.25 Table 10 - Radiosonde monitoring statistics (SHIPs): Geopotential height (metres)

```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

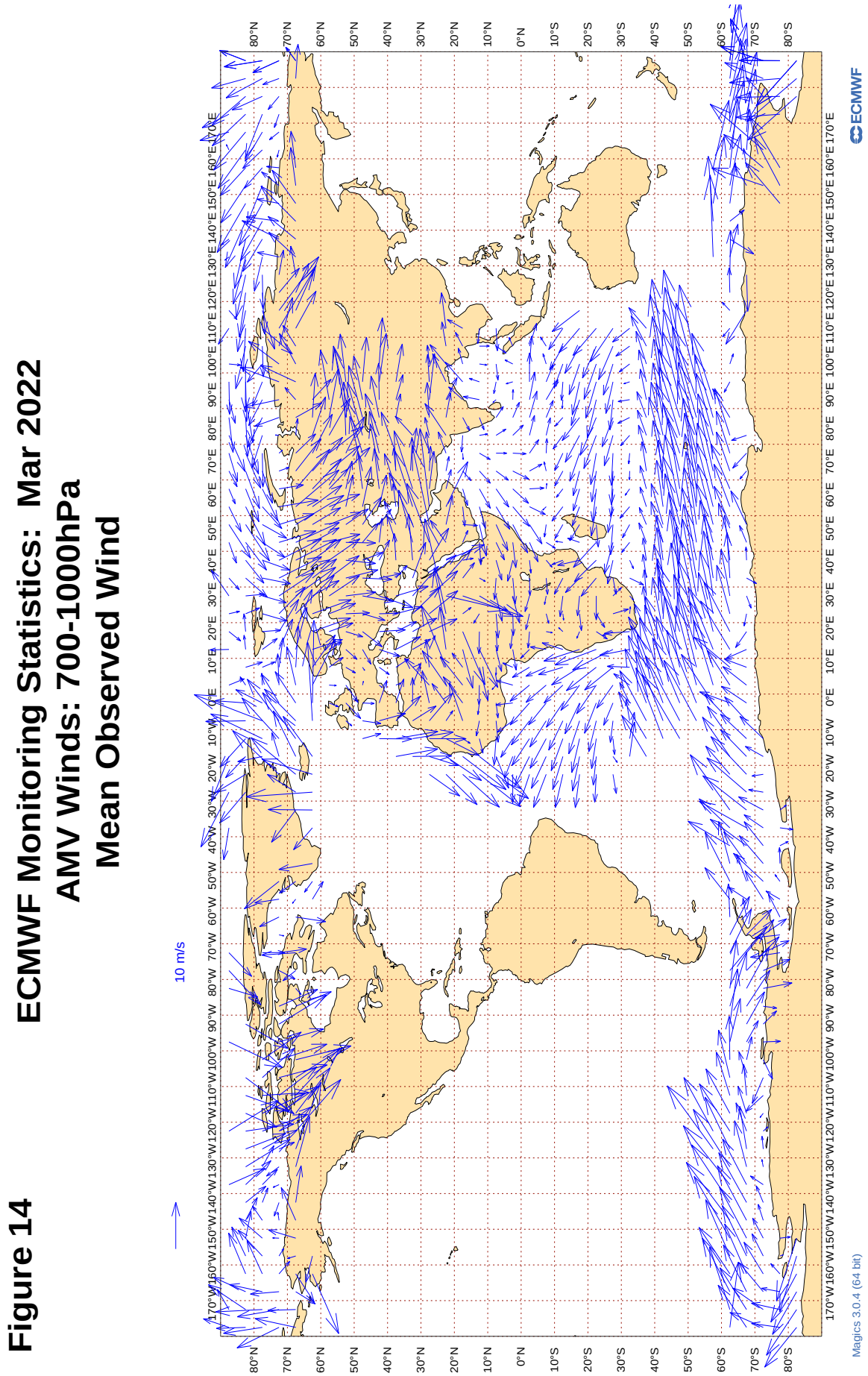
WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
2EERVT	12	Z	100	1	3.1	3.1
2EERVT	00	Z	100	1	6.0	6.0
7JUNA4	12	Z	100	8	20.0	7.5
7JUNA4	00	Z	100	4	11.8	-7.8
ASDE09	12	Z	100	5	15.7	14.3
ATGU3F	12	Z	100	1	26.6	-26.6
ATGU3F	00	Z	100	0	0.0	0.0
BPMWB2	12	Z	100	6	16.5	8.9
BPMWB2	00	Z	100	10	17.4	12.2
DBLK	12	Z	100	25	10.3	8.9
FPUW5G	12	Z	100	8	7.6	-3.0
HTXUH4	12	Z	100	5	36.0	33.5
HTXUH4	00	Z	100	8	21.1	12.2
JGQH	00	Z	100	1	7.7	7.7
JNKN7J	12	Z	100	12	23.3	18.1
JNKN7J	00	Z	100	10	23.9	21.9
KJJF9X	00	Z	100	2	13.5	13.4
KJJF9X	12	Z	100	2	16.2	-4.0
KMPLHP	00	Z	100	4	45.0	43.5
KMPLHP	12	Z	100	9	34.8	31.8
LRYQE3	12	Z	100	9	27.5	6.6
LRYQE3	00	Z	100	8	10.4	-7.7
USBOD	00	Z	100	2	8.9	-8.0
USCAT	00	Z	100	1	6.9	-6.9
USSIO	12	Z	100	0	0.0	0.0
USSIO	00	Z	100	3	8.5	-1.4
USYES	00	Z	100	1	10.0	-10.0
UXK5JT	12	Z	100	5	9.1	-4.5
UXK5JT	00	Z	100	5	11.9	-4.9
WDK38H	12	Z	100	10	12.3	-8.9
XQFJRG	12	Z	100	2	5.4	-5.4
XQFJRG	00	Z	100	7	13.4	-11.0
YLV96W	00	Z	100	4	8.4	-6.7
YLV96W	12	Z	100	4	8.3	-1.0
ZSNO	12	Z	100	2	14.6	14.4
ZVQEQC	12	Z	100	30	5.8	2.5

3.2.26 Table 11 - Radiosonde monitoring statistics (SHIPs): Wind (m/s)

```
RADIOSONDE MONITORING STATISTICS (SHIPS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 100 HPA
         AREA                  : GLOBAL
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
2EERVT	12	V	100	1	4.4	-3.3	-2.9
2EERVT	00	V	100	1	0.4	-0.4	-0.2
7JUNA4	12	V	100	8	3.1	0.1	0.5
7JUNA4	00	V	100	4	2.6	0.5	0.4
ASDE09	12	V	100	5	1.4	-0.1	0.0
ATGU3F	12	V	100	1	1.7	1.5	-0.7
ATGU3F	00	V	100	0	0.0	0.0	0.0
BPMWB2	12	V	100	6	3.1	0.2	0.2
BPMWB2	00	V	100	10	3.7	-0.3	-0.1
DBLK	12	V	100	25	3.0	0.4	-0.1
FPUW5G	12	V	100	8	3.8	-0.5	0.6
HTXUH4	12	V	100	5	2.1	0.1	0.1
HTXUH4	00	V	100	8	2.5	-0.9	-0.3
JGQH	00	V	100	1	10.8	-5.9	9.0
JNKN7J	12	V	100	12	4.4	-1.2	0.3
JNKN7J	00	V	100	10	3.9	1.6	0.6
KJJF9X	00	V	100	2	3.5	-0.6	3.1
KJJF9X	12	V	100	2	2.4	-2.2	-0.8
KMPLHP	00	V	100	4	4.0	-0.5	-1.3
KMPLHP	12	V	100	9	4.2	-0.6	1.1
LRYQE3	12	V	100	9	3.0	0.0	-0.3
LRYQE3	00	V	100	8	3.4	1.8	-1.1
USBOD	00	V	100	2	6.6	-5.9	1.9
USCAT	00	V	100	1	3.3	-2.3	2.4
USSIO	12	V	100	0	0.0	0.0	0.0
USSIO	00	V	100	2	3.6	1.0	-3.5
USYES	00	V	100	1	3.0	0.0	-3.0
UXK5JT	12	V	100	5	3.8	1.2	-1.2
UXK5JT	00	V	100	5	2.9	1.6	1.1
WDK38H	12	V	100	9	3.0	0.4	0.1
XQFJRG	12	V	100	2	4.1	-1.7	0.6
XQFJRG	00	V	100	6	3.1	-0.7	-0.3
YLV96W	00	V	100	4	2.6	2.0	-0.6
YLV96W	12	V	100	4	2.1	-0.5	0.7
ZSNO	12	V	100	2	3.2	0.5	-1.6
ZVQEQC	12	V	100	30	3.7	0.0	-0.5

3.2.27 Figure 14 - SATOB Winds: 700-1000hPa



3.2.28 Figure 15 - SATOB Winds: 150- 400hPa

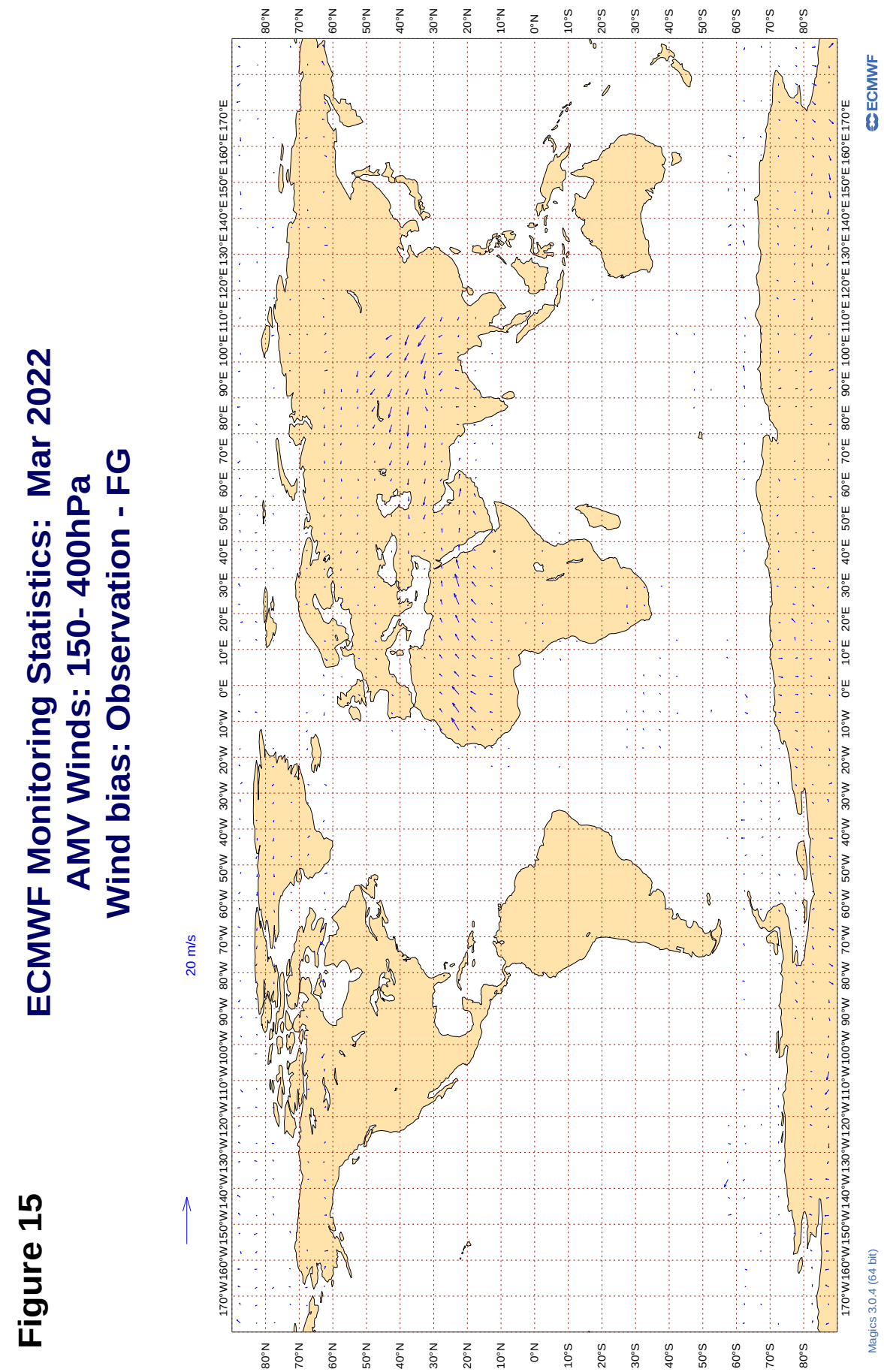


Figure 15

3.2.29 Figure 16 - SATOB Winds: 700-1000hPa

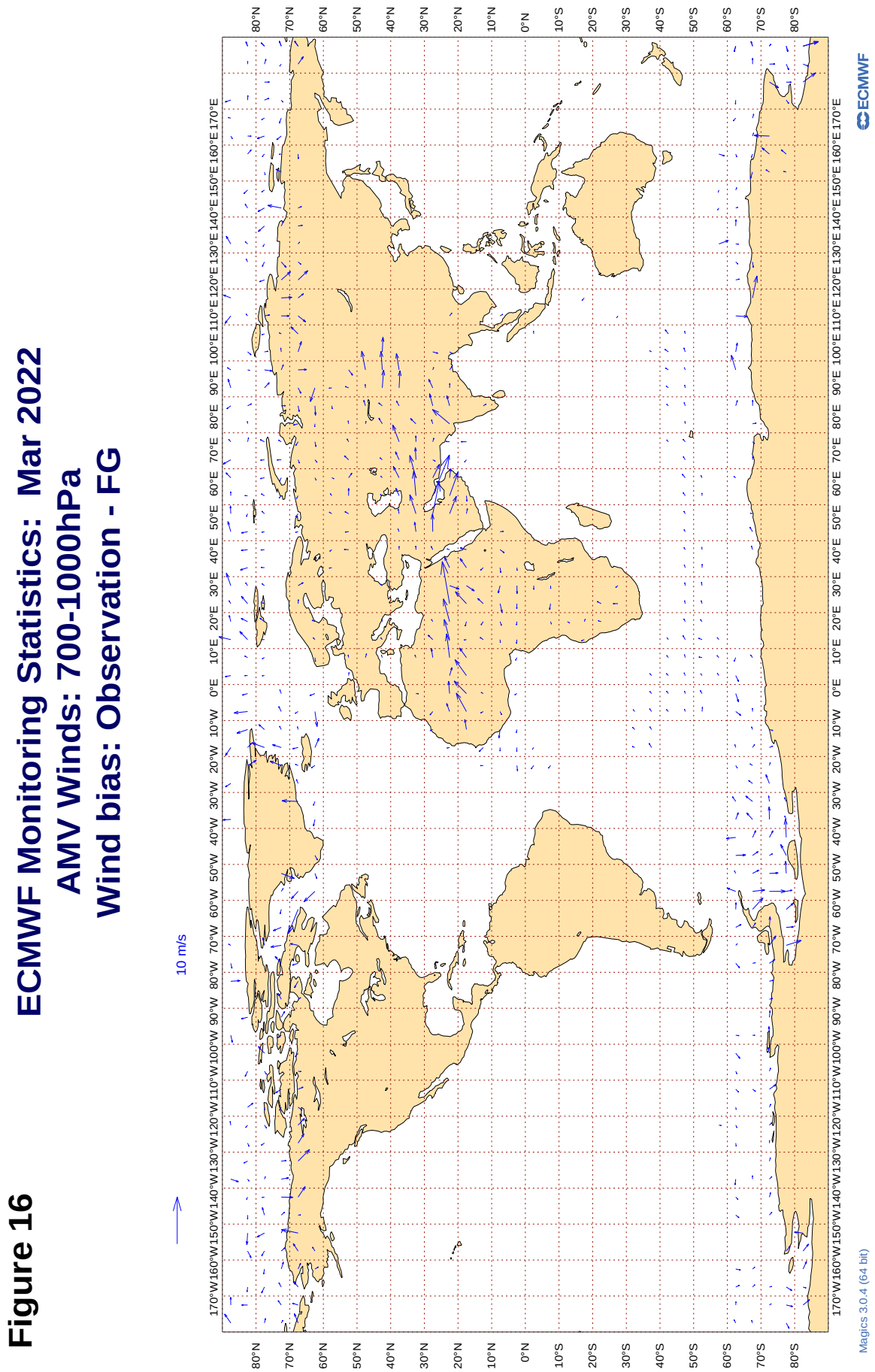


Figure 16

3.2.30 Figure 17 - SATOB Winds: 150- 400hPa

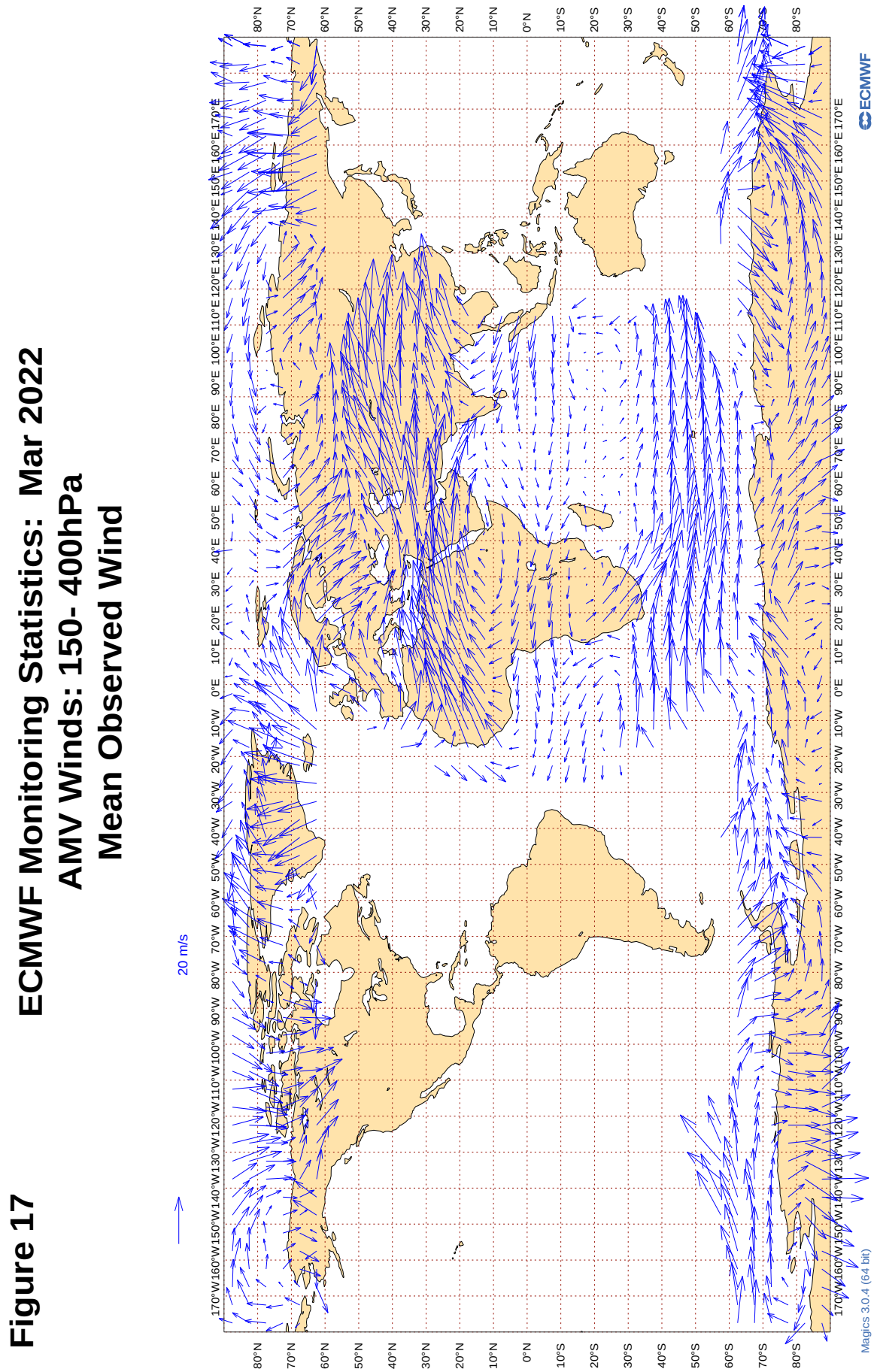


Figure 17

3.2.31 Figure 18 - AIRCRAFT Winds: 150- 300hPa

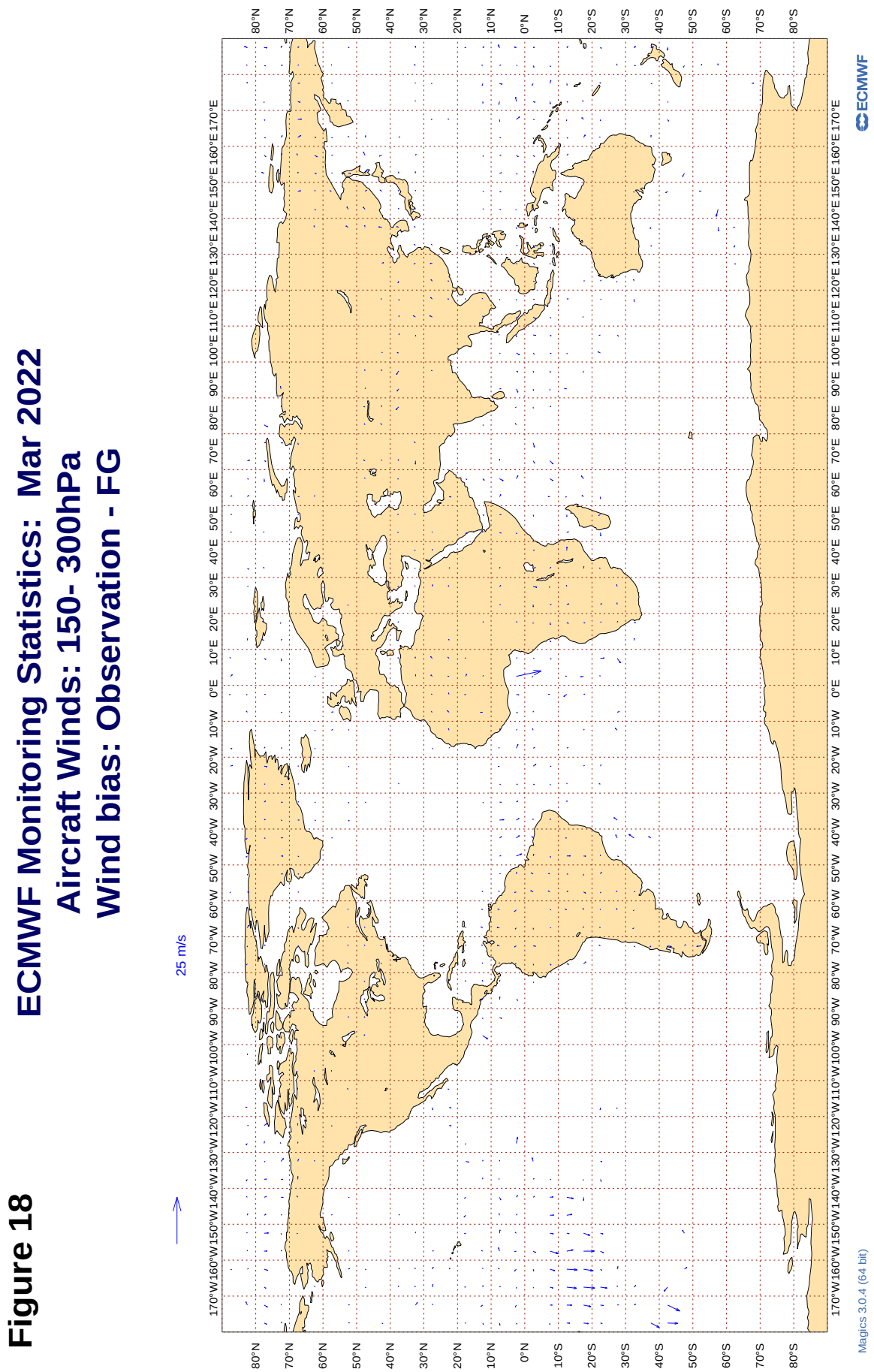


Figure 18

3.2.32 Table 12 - Airep Monitoring Statistics For Airline Carriers (Global)

```
          AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
                   MONITORING CENTRE     : ECMWF
                   ELEMENT MONITORED     : VECTOR WIND (M/S)
                   AREA                  : GLOBAL
                   PERIOD                : MAR 2022
                   STANDARD OF COMPARISON: FIRST-GUESS FIELD


SELECTION CRITERIA: NO. OF OBS.           >= 20

TIME = 99 => AVERAGE OF ALL OBSERVATIONS
GROSS ERROR LIMIT ON VECTOR WIND = 40 M/S
```

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
AAB	99	V	300-150	60	0	0	3.3	0.1
AAL	99	V	300-150	26972	4	0	5.3	0.1
AAR	99	V	300-150	181	0	0	4.1	-1.4
ABB	99	V	300-150	1487	0	0	3.6	0.0
ABD	99	V	300-150	1972	0	0	4.2	-0.3
ABG	99	V	300-150	152	0	0	4.0	0.4
ABP	99	V	300-150	27	0	0	2.4	0.6
ABX	99	V	300-150	79	0	0	4.1	-0.5
ACA	99	V	300-150	16317	9	0	6.4	-0.0
ACI	99	V	300-150	249	0	0	4.6	0.5
AEA	99	V	300-150	103	3	4	4.4	-0.4
AFL	99	V	300-150	318	0	0	3.7	0.2
AFR	99	V	300-150	28051	1	0	4.2	0.2
AHO	99	V	300-150	469	0	0	5.0	0.1
AHY	99	V	300-150	30	0	0	3.9	0.8
AIC	99	V	300-150	2091	3	0	6.1	0.2
AJT	99	V	300-150	703	0	0	3.9	-0.1
ALK	99	V	300-150	2352	0	0	3.0	0.5
AMX	99	V	300-150	2049	15	0	8.4	0.1
ANZ	99	V	300-150	9794	2	0	8.0	0.4
AOJ	99	V	300-150	204	0	0	3.6	0.2
ASA	99	V	300-150	94	3	5	8.5	-0.4
ASL	99	V	300-150	265	0	0	3.4	0.2
ASP	99	V	300-150	27	0	0	3.0	-1.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
ASY	99	V	300-150	177	0	0	3.7	0.0
ATC	99	V	300-150	107	1	0	4.7	0.8
ATN	99	V	300-150	136	1	1	4.9	0.5
AUA	99	V	300-150	3012	0	0	4.1	0.1
AVA	99	V	300-150	66	0	6	3.3	-0.2
AWC	99	V	300-150	365	0	0	3.9	0.1
AXB	99	V	300-150	31	0	0	2.4	0.6
AXM	99	V	300-150	312	0	1	4.9	0.6
AXY	99	V	300-150	182	0	0	3.1	0.1
AZG	99	V	300-150	1018	0	0	3.9	-0.4
AZV	99	V	300-150	335	0	0	3.7	0.4
BAF	99	V	300-150	66	0	0	2.9	-0.1
BAH	99	V	300-150	56	0	0	3.4	0.8
BAW	99	V	300-150	37702	7	0	5.8	0.1
BBA	99	V	300-150	34	0	0	3.9	0.4
BBC	99	V	300-150	476	1	0	5.3	0.8
BCS	99	V	300-150	2909	0	0	3.7	0.1
BEL	99	V	300-150	598	0	0	3.4	0.1
BFF	99	V	300-150	66	0	0	10.7	2.2
BFY	99	V	300-150	200	0	1	3.6	-0.4
BLU	99	V	300-150	57	0	0	4.5	-0.0
BLX	99	V	300-150	173	24	0	8.8	-0.4
BMW	99	V	300-150	49	0	0	3.8	0.2
BOX	99	V	300-150	3661	0	0	3.7	0.1
BOX	99	V	300-150	35	0	0	2.8	0.4
BRJ	99	V	300-150	23	0	0	3.0	1.6
BTX	99	V	300-150	201	0	0	3.7	-0.1
BVR	99	V	300-150	51	0	0	3.0	0.5
CAL	99	V	300-150	413	0	0	4.3	0.7
CAZ	99	V	300-150	155	0	0	3.5	0.1
CEB	99	V	300-150	168	0	0	3.0	0.6
CES	99	V	300-150	160	0	0	4.5	0.5
CFC	99	V	300-150	531	0	0	4.3	-0.1
CFG	99	V	300-150	3220	0	0	4.2	-0.0
CHG	99	V	300-150	519	0	0	4.2	-0.3
CHH	99	V	300-150	73	0	0	4.9	0.3
CJT	99	V	300-150	2227	0	0	4.1	-0.3
CKS	99	V	300-150	1089	0	0	3.9	0.1
CLE	99	V	300-150	108	0	0	4.1	-1.3
CLU	99	V	300-150	225	0	0	3.8	-0.6
CLX	99	V	300-150	5423	0	0	3.9	-0.2
CMB	99	V	300-150	1039	0	0	3.9	-0.1
CNV	99	V	300-150	157	0	0	3.0	0.4

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
CPA	99	V	300-150	361	0	0	4.5	0.5
CRL	99	V	300-150	1316	0	1	3.5	0.4
CSC	99	V	300-150	53	0	0	2.9	-0.0
CSN	99	V	300-150	261	1	0	5.5	0.5
CTM	99	V	300-150	87	0	0	3.0	-0.4
CWG	99	V	300-150	35	0	0	3.5	-0.0
DAH	99	V	300-150	468	0	0	3.6	0.4
DAL	99	V	300-150	30880	0	0	3.5	0.1
DHK	99	V	300-150	2613	4	0	5.3	-0.2
DJT	99	V	300-150	743	0	0	3.5	0.1
DLH	99	V	300-150	20000	0	0	3.4	-0.1
DSO	99	V	300-150	33	0	0	3.1	-1.6
DTA	99	V	300-150	27	0	0	3.1	-0.2
DUB	99	V	300-150	62	0	0	4.4	-0.2
EAU	99	V	300-150	104	0	0	3.6	0.7
EDC	99	V	300-150	126	0	0	3.6	0.1
EDG	99	V	300-150	46	0	0	3.8	-0.0
EDW	99	V	300-150	1368	0	0	3.6	0.2
EFF	99	V	300-150	21	0	0	3.4	-0.2
EIN	99	V	300-150	10247	0	0	3.6	0.2
EJM	99	V	300-150	859	0	0	3.5	0.2
ELY	99	V	300-150	3654	12	0	7.2	0.1
EMM	99	V	300-150	26	0	4	3.5	0.5
ETD	99	V	300-150	7962	6	0	7.0	0.2
ETH	99	V	300-150	5096	3	0	5.5	0.1
EUK	99	V	300-150	1719	0	0	3.6	0.2
EXS	99	V	300-150	193	0	0	3.7	-0.4
EZY	99	V	300-150	20	0	0	3.1	-0.5
E	99	V	300-150	3828	0	0	4.1	0.3
FBU	99	V	300-150	1185	0	0	3.9	0.3
FDX	99	V	300-150	8086	0	0	3.6	0.0
FIN	99	V	300-150	2246	0	0	3.2	-0.1
FJI	99	V	300-150	874	0	0	4.2	0.6
FPY	99	V	300-150	40	0	0	3.8	1.1
FRX	99	V	300-150	27	0	0	2.8	-0.5
FWI	99	V	300-150	1721	0	1	3.5	0.2
FWK	99	V	300-150	51	0	0	2.9	-0.2
FYG	99	V	300-150	88	0	0	3.8	-0.2
GAF	99	V	300-150	99	0	0	2.7	0.3
GBG	99	V	300-150	62	0	2	3.4	1.1
GCK	99	V	300-150	103	0	0	3.5	0.5
GDG	99	V	300-150	40	0	0	2.8	-0.3
GEC	99	V	300-150	1590	0	0	4.0	0.0

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
GES	99	V	300-150	57	0	0	2.7	0.6
GFA	99	V	300-150	503	3	0	5.8	0.5
GIA	99	V	300-150	379	0	0	2.8	0.4
GJW	99	V	300-150	22	0	0	3.0	1.1
GKY	99	V	300-150	59	0	0	3.4	-1.0
GMA	99	V	300-150	122	0	0	3.3	-0.0
GNJ	99	V	300-150	67	0	1	3.7	-0.1
GRP	99	V	300-150	56	0	0	3.6	1.0
GTI	99	V	300-150	2559	0	0	3.9	-0.3
HAL	99	V	300-150	262	0	1	4.5	0.5
HFY	99	V	300-150	69	0	0	2.8	-0.3
HKC	99	V	300-150	107	0	0	3.8	0.8
HNW	99	V	300-150	20	0	0	4.1	2.5
HRN	99	V	300-150	29	0	0	3.8	0.9
HRT	99	V	300-150	148	0	0	3.7	0.5
HUA	99	V	300-150	85	0	1	3.6	0.7
HYP	99	V	300-150	98	0	0	3.8	0.6
IBE	99	V	300-150	3054	0	1	3.6	0.1
ICE	99	V	300-150	3747	0	0	3.4	0.1
ICL	99	V	300-150	535	0	0	3.9	-0.2
ICV	99	V	300-150	485	0	0	3.9	-0.1
IFA	99	V	300-150	242	0	0	3.9	-0.1
IFC	99	V	300-150	44	0	0	4.0	0.7
IJM	99	V	300-150	132	0	0	6.1	-0.3
ITY	99	V	300-150	2990	0	0	3.4	0.2
JAF	99	V	300-150	889	8	0	8.0	0.1
JAL	99	V	300-150	20	10	0	12.3	1.8
JAS	99	V	300-150	127	0	0	3.6	0.4
JBU	99	V	300-150	2108	0	0	3.7	0.2
JCO	99	V	300-150	93	0	0	3.9	0.7
JCY	99	V	300-150	63	0	0	2.6	-0.5
JEF	99	V	300-150	39	0	0	3.9	-0.1
JET	99	V	300-150	50	0	0	2.6	0.8
JME	99	V	300-150	78	0	0	4.1	-1.5
JNY	99	V	300-150	21	0	0	3.1	-0.8
JST	99	V	300-150	195	1	0	6.0	0.4
KAC	99	V	300-150	1052	0	0	3.0	0.3
KAF	99	V	300-150	39	0	0	4.6	-0.8
KAI	99	V	300-150	64	0	2	4.8	-0.4
KAL	99	V	300-150	191	0	0	6.1	0.1
KAR	99	V	300-150	156	0	0	3.2	-0.1
KAY	99	V	300-150	59	0	0	2.9	0.6
KFE	99	V	300-150	50	0	0	3.3	0.9

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
KIW	99	V	300-150	63	0	2	4.9	0.8
KLM	99	V	300-150	16524	7	0	6.1	0.1
KOC	99	V	300-150	92	0	0	3.0	0.5
KQA	99	V	300-150	109	15	0	7.2	-0.1
KRF	99	V	300-150	27	0	0	4.6	-1.6
KRH	99	V	300-150	32	0	0	2.8	-0.6
LAN	99	V	300-150	100	10	1	9.7	1.1
LCO	99	V	300-150	382	0	0	4.5	-1.0
LDX	99	V	300-150	127	0	0	4.3	0.0
LGT	99	V	300-150	125	0	0	3.5	-0.1
LNI	99	V	300-150	662	0	0	2.8	0.4
LNX	99	V	300-150	122	0	0	3.8	0.4
LOT	99	V	300-150	3354	12	0	7.9	-0.2
LUC	99	V	300-150	48	0	0	3.7	0.5
LXG	99	V	300-150	40	0	0	3.2	0.7
LXJ	99	V	300-150	523	0	0	4.4	0.2
LYX	99	V	300-150	79	0	1	2.9	-0.1
MAS	99	V	300-150	2734	0	0	3.7	0.6
MAU	99	V	300-150	278	0	0	3.8	0.5
MED	99	V	300-150	49	0	0	4.0	-0.2
MGE	99	V	300-150	64	2	0	6.3	0.2
MHV	99	V	300-150	78	0	0	3.4	1.0
MJE	99	V	300-150	58	0	0	4.0	0.7
MLM	99	V	300-150	82	0	0	3.7	0.4
MLT	99	V	300-150	31	0	0	4.5	-0.6
MMD	99	V	300-150	316	0	0	3.3	0.1
MMZ	99	V	300-150	623	0	0	4.3	0.4
MNB	99	V	300-150	377	0	0	4.1	-0.3
MPH	99	V	300-150	850	0	0	4.2	-0.6
MSR	99	V	300-150	2035	7	0	5.9	0.1
NAS	99	V	300-150	33	0	0	3.1	0.7
NCR	99	V	300-150	320	0	0	3.9	-0.2
NJE	99	V	300-150	539	0	0	3.5	0.4
NOR	99	V	300-150	36	0	0	4.1	0.3
NOS	99	V	300-150	604	10	0	6.9	0.3
NSP	99	V	300-150	127	0	0	7.9	1.0
NWS	99	V	300-150	294	0	0	4.0	0.5
OAE	99	V	300-150	765	0	0	4.4	0.1
OCN	99	V	300-150	2667	0	0	3.6	0.2
OMA	99	V	300-150	564	2	0	4.8	0.3
ORT	99	V	300-150	23	0	0	5.3	0.9
PAC	99	V	300-150	489	0	0	3.6	0.0
PAL	99	V	300-150	398	0	1	2.9	0.5

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
PAT	99	V	300-150	66	0	0	2.8	-0.1
PEG	99	V	300-150	36	0	0	3.7	0.7
PIA	99	V	300-150	240	0	0	3.5	0.5
PLF	99	V	300-150	54	0	0	3.4	0.3
PLM	99	V	300-150	91	0	0	3.0	-0.2
PTA	99	V	300-150	30	0	0	4.5	0.4
PVA	99	V	300-150	214	0	0	3.4	-0.2
PVG	99	V	300-150	295	0	0	3.4	0.0
QAF	99	V	300-150	68	0	0	5.0	0.1
QFA	99	V	300-150	3966	2	0	7.9	0.3
QQE	99	V	300-150	182	0	0	3.6	0.3
QTR	99	V	300-150	24248	0	0	4.1	0.2
RAM	99	V	300-150	471	12	0	6.2	0.2
RCH	99	V	300-150	4794	0	0	4.8	0.3
RDN	99	V	300-150	57	0	0	4.7	0.2
RHH	99	V	300-150	66	0	0	8.3	3.5
RJA	99	V	300-150	1343	16	0	8.4	0.2
ROJ	99	V	300-150	121	0	0	2.9	0.3
RRR	99	V	300-150	296	0	0	4.0	0.1
RSF	99	V	300-150	96	0	0	3.4	-0.4
RYR	99	V	300-150	214	0	0	3.2	0.5
RZO	99	V	300-150	102	0	12	4.2	0.7
SAM	99	V	300-150	554	0	0	3.8	-0.2
SAS	99	V	300-150	3458	0	0	3.2	0.0
SAZ	99	V	300-150	30	0	0	3.5	0.8
SCO	99	V	300-150	33	0	0	3.0	0.8
SCX	99	V	300-150	47	2	6	5.3	-0.4
SEY	99	V	300-150	62	0	0	4.0	0.5
SHE	99	V	300-150	55	0	0	2.9	0.2
SIA	99	V	300-150	10919	0	0	4.2	0.4
SIO	99	V	300-150	27	0	0	3.1	0.6
SLM	99	V	300-150	104	0	0	3.2	0.3
SON	99	V	300-150	98	0	0	3.2	-0.1
SPA	99	V	300-150	96	0	0	3.8	-0.5
SVA	99	V	300-150	5819	1	0	4.5	0.3
SVW	99	V	300-150	280	0	0	3.8	0.3
SWR	99	V	300-150	7475	0	1	3.7	0.1
SYB	99	V	300-150	104	0	0	4.1	0.4
TAM	99	V	300-150	33	0	0	3.6	-0.1
TAP	99	V	300-150	1703	0	1	4.0	0.1
TAR	99	V	300-150	205	0	0	3.2	0.2
TAX	99	V	300-150	78	0	1	3.0	0.3
TAY	99	V	300-150	505	0	0	3.9	-0.2

AIREP MONITORING STATISTICS FOR AIRLINE CARRIERS
(CONTINUED)

IDENT	OBS TIME	ELM	LEVEL	NUM OBS	% GROSS	% CALM	VECTOR RMS	SPEE D BIAS
TEU	99	V	300-150	65	0	0	3.2	-0.3
TFL	99	V	300-150	1516	11	0	7.6	0.1
TGW	99	V	300-150	773	4	0	8.1	0.3
THA	99	V	300-150	191	1	0	6.9	0.4
THT	99	V	300-150	2197	5	0	6.4	0.5
THY	99	V	300-150	13793	3	0	4.7	0.0
TMN	99	V	300-150	272	0	0	4.4	0.6
TOM	99	V	300-150	4874	11	0	7.7	0.1
TOW	99	V	300-150	71	0	0	3.3	0.3
TPA	99	V	300-150	224	0	0	3.3	0.1
TSC	99	V	300-150	2902	0	0	3.7	0.2
TVP	99	V	300-150	41	0	0	3.4	-0.4
TVS	99	V	300-150	30	0	0	4.2	1.0
TWY	99	V	300-150	719	0	0	3.6	0.2
UAE	99	V	300-150	22583	0	0	3.4	0.3
UAF	99	V	300-150	21	0	0	2.8	-0.4
UAL	99	V	300-150	49093	6	2	6.2	0.0
ULC	99	V	300-150	48	0	0	3.0	0.5
UPS	99	V	300-150	5231	0	0	4.0	-0.2
URO	99	V	300-150	317	0	0	3.5	0.0
UZB	99	V	300-150	93	16	0	9.1	-0.5
VAL	99	V	300-150	49	0	0	4.7	0.3
VCG	99	V	300-150	31	0	0	3.4	1.6
VCJ	99	V	300-150	57	0	0	3.1	0.7
VIR	99	V	300-150	16718	5	0	5.4	-0.0
VJT	99	V	300-150	1561	0	0	3.4	0.3
VMP	99	V	300-150	137	0	0	6.0	0.0
VTI	99	V	300-150	96	0	0	2.6	0.5
VXS	99	V	300-150	42	0	0	2.8	0.5
WDY	99	V	300-150	31	0	0	3.2	-0.1
WJA	99	V	300-150	1404	10	0	6.7	0.3
WRC	99	V	300-150	138	0	0	3.7	0.2
WWI	99	V	300-150	87	0	0	3.7	-0.5
XAX	99	V	300-150	95	0	0	4.2	1.2
XEN	99	V	300-150	52	0	0	3.5	0.7
XOJ	99	V	300-150	24	0	0	2.8	1.2
XRO	99	V	300-150	139	0	0	3.9	0.2

4 EUCOS Area Monitoring Statistics

The following tables provide information on the quality of upper-air data and surface DRIFTER data over the EUCOS area as received at ECMWF during the month.

Tables 13, 14 (50 hPa level), 15, 16 (100 hPa level) 17, 18 (500 hPa level) 19 and 20 (850 hPa level) provide quality statistics for all TEMPSHIPS and PILOTSHIPS received during the month in the area $10\,^{\circ}$N - $90\,^{\circ}$N, $70\,^{\circ}$W - $40\,^{\circ}$E and for TEMPS and PILOTS from selected land stations within the same area. The statistics are in the same form as tables 10 and 11.
Tables 21-23 provides quality statistics of pressure and wind for all DRIFTER reports received in the area $10\,^{\circ}$N - $90\,^{\circ}$N, $70\,^{\circ}$W - $40\,^{\circ}$E. The statistics are in the same form as tables 4-6.

4.1 Table 13 - Radiosonde Monitoring Statistics (EUCOS): 50 hPa Geopotential height (metres)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	50	28	20.5	3.9
01001	00	Z	50	26	13.4	-0.6
01028	12	Z	50	22	11.3	-7.1
01028	00	Z	50	20	12.9	-8.0
01400	12	Z	50	15	71.7	71.4
01400	00	Z	50	22	80.1	79.7
01415	00	Z	50	29	9.3	3.7
01415	12	Z	50	30	7.8	-1.0
02365	12	Z	50	13	8.5	-1.3
02365	00	Z	50	12	15.3	-0.5
02591	12	Z	50	1	3.4	3.4
02836	00	Z	50	28	8.6	-1.3
02836	12	Z	50	35	10.6	-6.3
02963	12	Z	50	34	5.5	-2.8
02963	00	Z	50	25	7.4	0.5
03005	12	Z	50	28	8.0	-2.6
03005	00	Z	50	25	7.4	-2.4
03238	00	Z	50	29	10.9	-2.1
03238	12	Z	50	28	10.2	-3.1
03808	00	Z	50	27	6.4	2.7
03808	12	Z	50	29	12.3	1.4
03918	00	Z	50	30	10.8	6.1
03918	12	Z	50	30	6.9	0.7
03953	00	Z	50	31	10.7	-6.8
03953	12	Z	50	31	10.4	-5.0
04018	12	Z	50	23	14.6	-8.6
04018	00	Z	50	29	14.6	-3.6
04220	00	Z	50	29	16.2	1.3
04220	12	Z	50	31	65.1	9.1
04270	00	Z	50	23	18.6	-5.5
04270	12	Z	50	15	13.2	-6.4
04320	12	Z	50	24	11.9	1.0
04320	00	Z	50	24	18.7	8.8
04339	00	Z	50	18	10.5	3.3
04339	12	Z	50	18	11.0	-0.9
04360	12	Z	50	19	15.2	-7.0
04360	00	Z	50	15	19.0	-11.4
06011	00	Z	50	26	13.6	-2.1
06011	12	Z	50	29	24.1	17.4

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	50	5	4.3	-2.5
06260	00	Z	50	29	40.8	-5.4
06610	00	Z	50	30	5.4	2.6
06610	12	Z	50	33	4.9	-0.4
07110	00	Z	50	29	10.1	-5.9
07110	12	Z	50	30	12.2	-4.6
07510	12	Z	50	29	9.6	-1.4
07510	00	Z	50	30	12.9	-9.3
07645	00	Z	50	28	10.7	-7.6
07645	12	Z	50	30	16.5	-15.0
07761	12	Z	50	30	17.2	-12.5
07761	00	Z	50	28	17.0	-12.7
08001	12	Z	50	29	7.7	1.9
08001	00	Z	50	31	9.5	7.5
08221	00	Z	50	30	10.2	7.7
08221	12	Z	50	31	11.2	6.7
08302	12	Z	50	31	7.8	-4.5
08302	00	Z	50	31	7.2	-4.5
08508	12	Z	50	24	9.1	-0.5
08522	12	Z	50	30	8.1	-2.2
085790	12	Z	50	0	0.0	0.0
10035	00	Z	50	31	14.7	13.9
10035	12	Z	50	31	9.3	7.3
10393	12	Z	50	31	9.3	-1.0
10393	00	Z	50	31	5.6	2.4
10410	00	Z	50	31	5.1	-0.8
10410	12	Z	50	31	8.1	-5.0
10739	00	Z	50	31	8.0	5.8
10739	12	Z	50	30	4.3	0.0
11035	12	Z	50	31	11.9	8.2
11035	00	Z	50	28	8.5	5.1
12982	00	Z	50	30	6.4	4.0
12982	12	Z	50	30	8.2	2.9
16245	00	Z	50	31	7.4	5.9
16245	12	Z	50	31	4.8	-0.2
16429	00	Z	50	31	7.9	5.4
16429	12	Z	50	31	7.8	3.6
16622	00	Z	50	26	17.4	14.4
16754	00	Z	50	25	16.5	8.1
17607	12	Z	50	25	10.8	8.1
26435	12	Z	50	14	6.1	-4.0
2EERVT	12	Z	50	1	1.2	-1.2
2EERVT	00	Z	50	1	13.5	13.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	50	30	8.6	6.6
60018	12	Z	50	29	7.3	-2.2
7JUNA4	12	Z	50	5	53.6	20.4
7JUNA4	00	Z	50	1	10.5	-10.5
ASDE09	12	Z	50	5	18.8	15.2
ATGU3F	12	Z	50	1	26.7	-26.7
ATGU3F	00	Z	50	0	0.0	0.0
BPMWB2	12	Z	50	5	26.4	13.9
BPMWB2	00	Z	50	8	28.8	21.5
FPUW5G	12	Z	50	7	13.3	-5.7
HTXUH4	12	Z	50	5	39.0	34.3
HTXUH4	00	Z	50	8	26.5	16.3
JNKN7J	12	Z	50	9	21.8	10.8
JNKN7J	00	Z	50	8	23.9	18.9
KJJF9X	00	Z	50	2	24.5	23.9
KJJF9X	12	Z	50	1	11.1	11.1
KMPLHP	00	Z	50	4	36.6	36.4
KMPLHP	12	Z	50	8	39.0	32.3
LRYQE3	12	Z	50	10	94.1	51.7
LRYQE3	00	Z	50	10	18.3	4.6
UXK5JT	12	Z	50	4	9.5	-3.3
UXK5JT	00	Z	50	5	13.6	0.8
WDK38H	12	Z	50	6	13.9	-11.2
XQFJRG	12	Z	50	2	4.3	-1.9
XQFJRG	00	Z	50	3	11.7	-8.1
YLV96W	00	Z	50	2	7.3	-6.9
YLV96W	12	Z	50	4	16.0	-1.6

4.2 Table 14 - Radiosonde Monitoring Statistics (EUCOS):50 hPa Wind (m/s)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 :  50 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	50	28	3.7	0.7	0.0
01001	00	V	50	18	3.8	0.4	-0.8
01028	12	V	50	20	3.2	0.1	-0.3
01028	00	V	50	16	3.8	0.3	0.1
01400	12	V	50	11	3.0	0.6	0.9
01400	00	V	50	12	2.8	-0.2	-1.5
01415	00	V	50	23	3.4	-0.1	-0.3
01415	12	V	50	30	3.7	0.0	-0.3
02365	12	V	50	12	4.7	-1.3	0.9
02365	00	V	50	8	4.5	0.5	0.7
02591	12	V	50	1	3.3	1.7	-2.8
02836	00	V	50	21	3.6	-0.7	0.9
02836	12	V	50	31	3.8	-0.1	0.3
02963	12	V	50	30	3.0	-0.4	0.5
02963	00	V	50	19	3.3	0.7	-0.1
03005	12	V	50	28	3.2	0.1	0.0
03005	00	V	50	19	3.7	-0.2	-0.5
03238	00	V	50	20	3.8	0.2	-0.2
03238	12	V	50	28	3.2	-0.1	-0.6
03808	00	V	50	23	2.9	-0.1	0.1
03808	12	V	50	29	2.8	0.6	-0.3
03918	00	V	50	27	3.2	-0.2	-0.3
03918	12	V	50	30	3.3	0.2	-0.5
03953	00	V	50	24	2.9	-0.2	0.2
03953	12	V	50	31	3.0	0.0	-0.5
04018	12	V	50	22	4.8	0.0	-0.8
04018	00	V	50	22	4.9	0.8	0.0
04220	00	V	50	23	2.6	-0.1	1.0
04220	12	V	50	31	3.8	0.1	-0.1
04270	00	V	50	18	3.2	0.4	-0.2
04270	12	V	50	15	2.8	0.5	0.7
04320	12	V	50	24	3.4	-0.1	0.0
04320	00	V	50	21	3.1	-0.3	-0.9
04339	00	V	50	16	3.7	-0.5	0.7
04339	12	V	50	18	3.8	0.1	0.4
04360	12	V	50	19	3.7	1.1	-1.2
04360	00	V	50	15	3.9	1.2	0.1
06011	00	V	50	24	2.5	0.0	0.2
06011	12	V	50	29	4.0	0.2	-0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	50	5	2.4	-1.2	-0.9
06260	00	V	50	22	2.6	0.5	-0.4
06610	00	V	50	22	2.4	-0.1	-0.2
06610	12	V	50	31	2.8	0.5	-0.1
07110	00	V	50	21	2.9	0.5	0.4
07110	12	V	50	30	2.9	0.5	0.0
07510	12	V	50	29	3.0	0.2	-0.1
07510	00	V	50	26	2.5	0.4	-0.7
07645	00	V	50	23	2.8	0.1	-0.5
07645	12	V	50	30	3.1	0.4	0.0
07761	12	V	50	30	2.9	0.0	-0.6
07761	00	V	50	22	2.6	0.6	-0.6
08001	12	V	50	29	2.9	-0.3	-0.5
08001	00	V	50	23	2.6	0.4	-0.5
08221	00	V	50	25	3.8	0.3	0.4
08221	12	V	50	30	3.3	-0.5	-0.5
08302	12	V	50	31	3.1	-0.1	0.0
08302	00	V	50	25	3.1	0.3	-0.5
08508	12	V	50	24	3.0	-0.2	-0.1
08522	12	V	50	30	3.3	0.3	-0.4
085790	12	V	50	0	0.0	0.0	0.0
10035	00	V	50	30	2.5	0.4	0.1
10035	12	V	50	31	2.3	0.1	0.0
10393	12	V	50	31	3.2	1.0	0.0
10393	00	V	50	25	2.4	-0.5	-0.8
10410	00	V	50	29	3.0	0.4	-0.3
10410	12	V	50	31	2.8	0.6	0.1
10739	00	V	50	30	2.9	0.3	0.1
10739	12	V	50	29	2.3	0.2	-0.4
11035	12	V	50	31	2.8	0.0	-0.4
11035	00	V	50	23	2.6	-0.3	-0.9
12982	00	V	50	22	3.0	0.2	-0.5
12982	12	V	50	30	3.0	0.8	0.3
16245	00	V	50	25	2.6	0.6	-0.2
16245	12	V	50	31	3.1	0.7	-0.5
16429	00	V	50	24	2.8	0.1	-1.1
16429	12	V	50	31	3.5	0.6	0.0
16622	00	V	50	19	3.7	-0.1	-0.1
16754	00	V	50	18	4.2	-0.1	-1.0
17607	12	V	50	15	3.3	0.9	0.6
26435	12	V	50	14	3.4	-0.6	0.2
2EERVT	12	V	50	1	3.5	3.5	-0.1
2EERVT	00	V	50	1	6.1	-5.0	3.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	50	24	3.6	-0.3	0.0
60018	12	V	50	29	3.0	-0.5	0.2
7JUNA4	12	V	50	5	2.8	1.5	1.7
7JUNA4	00	V	50	1	1.3	-0.6	-1.2
ASDE09	12	V	50	5	2.1	-0.5	-0.2
ATGU3F	12	V	50	1	4.8	1.9	-4.4
ATGU3F	00	V	50	0	0.0	0.0	0.0
BPMWB2	12	V	50	5	2.7	0.1	0.1
BPMWB2	00	V	50	8	2.9	0.0	0.3
FPUW5G	12	V	50	7	3.1	1.7	-0.8
HTXUH4	12	V	50	5	3.3	-0.2	0.3
HTXUH4	00	V	50	8	3.5	-0.6	-0.1
JNKN7J	12	V	50	9	2.6	0.0	0.4
JNKN7J	00	V	50	8	4.5	-0.4	0.2
KJJF9X	00	V	50	2	5.8	-2.3	-0.9
KJJF9X	12	V	50	1	7.5	4.1	-6.3
KMPLHP	00	V	50	4	4.3	-1.4	1.6
KMPLHP	12	V	50	8	5.1	0.1	0.8
LRYQE3	12	V	50	10	2.6	0.2	0.1
LRYQE3	00	V	50	10	3.8	1.3	0.7
UXK5JT	12	V	50	4	3.0	0.6	-0.6
UXK5JT	00	V	50	5	2.4	0.2	-0.2
WDK38H	12	V	50	5	4.6	0.8	0.9
XQFJRG	12	V	50	2	3.4	-2.1	2.5
XQFJRG	00	V	50	3	3.9	1.4	-3.4
YLV96W	00	V	50	2	3.8	-2.8	-0.1
YLV96W	12	V	50	4	2.5	-0.1	-1.8

4.3 Table 15 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Geopotential height (metres)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 100 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	100	28	12.1	0.7
01001	00	Z	100	29	11.0	-4.0
01028	12	Z	100	22	8.1	-5.8
01028	00	Z	100	22	10.1	-6.7
01400	12	Z	100	22	71.4	71.1
01400	00	Z	100	26	74.8	72.7
01415	00	Z	100	30	6.2	1.8
01415	12	Z	100	30	7.8	-1.2
02365	12	Z	100	15	7.2	-3.9
02365	00	Z	100	15	6.8	-1.6
02591	12	Z	100	1	2.1	2.1
02836	00	Z	100	30	8.0	-5.1
02836	12	Z	100	35	9.1	-6.4
02963	12	Z	100	34	5.7	-3.4
02963	00	Z	100	26	5.8	-0.3
03005	12	Z	100	32	8.0	-4.4
03005	00	Z	100	30	42.0	3.9
03238	00	Z	100	30	7.5	-1.9
03238	12	Z	100	28	8.9	-3.4
03808	00	Z	100	30	4.5	-0.2
03808	12	Z	100	29	12.3	-0.7
03918	00	Z	100	30	7.4	3.0
03918	12	Z	100	30	5.6	-0.2
03953	00	Z	100	31	11.1	-8.9
03953	12	Z	100	31	10.9	-5.8
04018	12	Z	100	25	8.3	-5.9
04018	00	Z	100	30	7.6	-4.6
04220	00	Z	100	29	13.3	1.5
04220	12	Z	100	31	14.4	-1.0
04270	00	Z	100	26	12.6	-8.4
04270	12	Z	100	24	13.3	-8.0
04320	12	Z	100	29	10.8	-2.5
04320	00	Z	100	28	11.7	3.2
04339	00	Z	100	24	7.0	-2.0
04339	12	Z	100	18	11.7	-6.1
04360	12	Z	100	19	11.9	-8.7
04360	00	Z	100	15	12.5	-10.7
06011	00	Z	100	26	8.0	0.4
06011	12	Z	100	31	14.7	10.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	100	5	5.6	-3.5
06260	00	Z	100	29	41.7	-9.4
06610	00	Z	100	33	3.4	-1.0
06610	12	Z	100	33	4.5	-1.3
07110	00	Z	100	30	12.3	-10.5
07110	12	Z	100	31	11.6	-8.3
07510	12	Z	100	30	8.2	-4.8
07510	00	Z	100	31	13.2	-11.5
07645	00	Z	100	29	12.9	-11.4
07645	12	Z	100	30	16.5	-15.3
07761	12	Z	100	30	18.4	-15.7
07761	00	Z	100	30	18.5	-16.4
08001	12	Z	100	29	5.0	-0.7
08001	00	Z	100	31	5.9	2.3
08221	00	Z	100	30	6.0	2.2
08221	12	Z	100	31	8.0	3.8
08302	12	Z	100	31	9.8	-7.2
08302	00	Z	100	31	9.1	-7.5
08508	12	Z	100	24	9.9	-1.3
08522	12	Z	100	31	7.7	-1.6
085790	12	Z	100	0	0.0	0.0
10035	00	Z	100	31	12.9	12.3
10035	12	Z	100	31	10.4	9.1
10393	12	Z	100	31	5.8	-3.1
10393	00	Z	100	37	3.5	-1.9
10410	00	Z	100	32	4.9	-2.6
10410	12	Z	100	31	6.4	-5.2
10739	00	Z	100	31	4.4	2.8
10739	12	Z	100	30	3.7	-0.5
11035	12	Z	100	31	6.7	3.2
11035	00	Z	100	32	5.4	2.0
12982	00	Z	100	31	3.7	2.3
12982	12	Z	100	31	6.2	0.2
16245	00	Z	100	31	4.0	1.2
16245	12	Z	100	31	4.9	-2.4
16429	00	Z	100	31	4.7	0.7
16429	12	Z	100	31	5.4	0.4
16622	00	Z	100	29	11.8	10.5
16754	00	Z	100	26	9.7	2.0
17607	12	Z	100	29	7.1	3.7
26435	12	Z	100	14	6.9	-3.6
2EERVT	12	Z	100	1	3.1	3.1
2EERVT	00	Z	100	1	6.0	6.0

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	100	30	5.4	2.0
60018	12	Z	100	29	5.9	-1.7
7JUNA4	12	Z	100	8	20.0	7.5
7JUNA4	00	Z	100	4	11.8	-7.8
ASDE09	12	Z	100	5	15.7	14.3
ATGU3F	12	Z	100	1	26.6	-26.6
ATGU3F	00	Z	100	0	0.0	0.0
BPMWB2	12	Z	100	6	16.5	8.9
BPMWB2	00	Z	100	10	17.4	12.2
FPUW5G	12	Z	100	8	7.6	-3.0
HTXUH4	12	Z	100	5	36.0	33.5
HTXUH4	00	Z	100	8	21.1	12.2
JNKN7J	12	Z	100	12	23.3	18.1
JNKN7J	00	Z	100	10	23.9	21.9
KJJF9X	00	Z	100	2	13.5	13.4
KJJF9X	12	Z	100	2	16.2	-4.0
KMPLHP	00	Z	100	4	45.0	43.5
KMPLHP	12	Z	100	9	34.8	31.8
LRYQE3	12	Z	100	9	27.5	6.6
LRYQE3	00	Z	100	8	10.4	-7.7
UXK5JT	12	Z	100	5	9.1	-4.5
UXK5JT	00	Z	100	5	11.9	-4.9
WDK38H	12	Z	100	10	12.3	-8.9
XQFJRG	12	Z	100	2	5.4	-5.4
XQFJRG	00	Z	100	7	13.4	-11.0
YLV96W	00	Z	100	4	8.4	-6.7
YLV96W	12	Z	100	4	8.3	-1.0

4.4 Table 16 - Radiosonde Monitoring Statistics (EUCOS): 100 hPa Wind (m/s)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 100 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	100	28	3.1	0.3	0.5
01001	00	V	100	20	3.0	0.0	0.2
01028	12	V	100	20	2.3	0.0	-0.6
01028	00	V	100	15	2.6	0.4	-0.7
01400	12	V	100	20	2.4	0.1	0.2
01400	00	V	100	18	3.0	0.8	-0.3
01415	00	V	100	22	3.2	-0.2	0.5
01415	12	V	100	30	2.9	0.0	0.7
02365	12	V	100	15	2.8	-0.1	0.9
02365	00	V	100	11	4.1	0.8	1.2
02591	12	V	100	1	0.8	-0.7	0.3
02836	00	V	100	22	2.8	-0.5	-0.5
02836	12	V	100	31	3.2	0.4	0.1
02963	12	V	100	30	3.5	-0.3	-0.4
02963	00	V	100	19	3.1	0.0	0.1
03005	12	V	100	31	2.7	-0.2	-0.3
03005	00	V	100	21	3.4	0.1	0.0
03238	00	V	100	20	3.0	-0.5	0.3
03238	12	V	100	28	3.0	0.5	-0.3
03808	00	V	100	23	3.3	0.0	0.5
03808	12	V	100	29	3.2	0.7	0.3
03918	00	V	100	26	3.2	0.5	-0.4
03918	12	V	100	30	3.3	0.4	0.1
03953	00	V	100	24	4.4	0.0	-0.4
03953	12	V	100	31	2.9	0.5	0.0
04018	12	V	100	24	2.5	-0.4	0.0
04018	00	V	100	29	2.8	-0.2	0.0
04220	00	V	100	25	2.3	-0.3	-0.2
04220	12	V	100	31	2.5	-0.1	-0.4
04270	00	V	100	21	2.6	0.3	-0.6
04270	12	V	100	24	2.7	0.3	-0.1
04320	12	V	100	29	3.0	0.2	0.0
04320	00	V	100	23	3.0	0.7	0.7
04339	00	V	100	23	3.4	0.4	-0.5
04339	12	V	100	18	3.2	-0.3	0.1
04360	12	V	100	19	3.9	-0.4	0.0
04360	00	V	100	14	3.2	0.7	-0.1
06011	00	V	100	22	3.0	0.7	-0.9
06011	12	V	100	31	3.1	-0.7	0.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	100	5	1.8	0.6	-0.5
06260	00	V	100	22	3.3	1.0	0.5
06610	00	V	100	29	2.4	0.3	0.4
06610	12	V	100	31	2.7	0.5	-0.1
07110	00	V	100	21	2.3	0.6	-0.2
07110	12	V	100	30	2.7	0.4	0.3
07510	12	V	100	30	3.1	0.3	0.2
07510	00	V	100	27	2.8	0.8	-0.3
07645	00	V	100	24	2.8	0.1	0.3
07645	12	V	100	30	2.8	0.8	-0.2
07761	12	V	100	30	2.9	0.4	0.0
07761	00	V	100	23	3.2	0.6	0.7
08001	12	V	100	29	3.1	0.2	0.8
08001	00	V	100	25	3.1	-0.5	0.6
08221	00	V	100	25	3.5	0.9	0.2
08221	12	V	100	31	3.6	-0.3	0.4
08302	12	V	100	31	4.2	0.5	-0.2
08302	00	V	100	25	3.2	-0.2	0.5
08508	12	V	100	24	3.3	0.6	-0.5
08522	12	V	100	31	3.6	0.9	0.2
085790	12	V	100	0	0.0	0.0	0.0
10035	00	V	100	30	2.5	0.0	0.0
10035	12	V	100	31	2.8	0.0	0.8
10393	12	V	100	31	2.4	0.1	-0.7
10393	00	V	100	30	2.6	0.2	-0.1
10410	00	V	100	30	2.8	0.3	0.1
10410	12	V	100	31	2.6	0.3	0.5
10739	00	V	100	30	2.7	0.8	-0.5
10739	12	V	100	30	2.3	0.1	0.5
11035	12	V	100	31	2.8	0.0	-0.4
11035	00	V	100	25	3.0	0.4	-0.4
12982	00	V	100	26	2.7	0.6	0.1
12982	12	V	100	30	2.7	0.7	0.1
16245	00	V	100	24	2.6	-0.2	-0.4
16245	12	V	100	31	3.5	0.1	0.0
16429	00	V	100	30	3.5	0.2	0.0
16429	12	V	100	31	4.0	0.3	-0.3
16622	00	V	100	23	3.3	1.2	0.8
16754	00	V	100	21	4.4	0.2	0.2
17607	12	V	100	18	3.9	0.0	0.4
26435	12	V	100	14	3.4	0.5	-0.6
2EERVT	12	V	100	1	4.4	-3.3	-2.9
2EERVT	00	V	100	1	0.4	-0.4	-0.2

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	100	24	4.7	0.8	-0.1
60018	12	V	100	29	3.9	-0.1	-0.4
7JUNA4	12	V	100	8	3.1	0.1	0.5
7JUNA4	00	V	100	4	2.6	0.5	0.4
ASDE09	12	V	100	5	1.4	-0.1	0.0
ATGU3F	12	V	100	1	1.7	1.5	-0.7
ATGU3F	00	V	100	0	0.0	0.0	0.0
BPMWB2	12	V	100	6	3.1	0.2	0.2
BPMWB2	00	V	100	10	3.7	-0.3	-0.1
FPUW5G	12	V	100	8	3.8	-0.5	0.6
HTXUH4	12	V	100	5	2.1	0.1	0.1
HTXUH4	00	V	100	8	2.5	-0.9	-0.3
JNKN7J	12	V	100	12	4.4	-1.2	0.3
JNKN7J	00	V	100	10	3.9	1.6	0.6
KJJF9X	00	V	100	2	3.5	-0.6	3.1
KJJF9X	12	V	100	2	2.4	-2.2	-0.8
KMPLHP	00	V	100	4	4.0	-0.5	-1.3
KMPLHP	12	V	100	9	4.2	-0.6	1.1
LRYQE3	12	V	100	9	3.0	0.0	-0.3
LRYQE3	00	V	100	8	3.4	1.8	-1.1
UXK5JT	12	V	100	5	3.8	1.2	-1.2
UXK5JT	00	V	100	5	2.9	1.6	1.1
WDK38H	12	V	100	9	3.0	0.4	0.1
XQFJRG	12	V	100	2	4.1	-1.7	0.6
XQFJRG	00	V	100	6	3.1	-0.7	-0.3
YLV96W	00	V	100	4	2.6	2.0	-0.6
YLV96W	12	V	100	4	2.1	-0.5	0.7

4.5 Table 17 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Geopotential height (metres)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	500	30	9.0	-6.3
01001	00	Z	500	32	12.2	-8.8
01028	12	Z	500	22	4.0	-1.8
01028	00	Z	500	22	5.7	-3.9
01400	12	Z	500	28	77.8	77.6
01400	00	Z	500	31	77.1	75.7
01415	00	Z	500	30	4.5	3.6
01415	12	Z	500	30	5.0	2.7
02365	12	Z	500	16	5.2	0.7
02365	00	Z	500	17	4.5	1.6
02591	12	Z	500	1	9.3	9.3
02836	00	Z	500	31	3.1	-0.3
02836	12	Z	500	36	3.0	0.5
02963	12	Z	500	34	3.4	2.5
02963	00	Z	500	27	3.1	1.3
03005	12	Z	500	32	3.2	-0.2
03005	00	Z	500	30	3.1	-1.3
03238	00	Z	500	30	3.4	2.1
03238	12	Z	500	30	3.3	2.5
03808	00	Z	500	31	3.2	1.5
03808	12	Z	500	30	14.6	4.2
03918	00	Z	500	30	6.5	6.1
03918	12	Z	500	30	6.1	5.5
03953	00	Z	500	31	5.3	-3.1
03953	12	Z	500	31	6.7	-1.4
04018	12	Z	500	25	3.3	1.1
04018	00	Z	500	30	3.2	0.0
04220	00	Z	500	30	15.1	4.9
04220	12	Z	500	31	15.4	4.6
04270	00	Z	500	28	10.1	-9.0
04270	12	Z	500	24	10.9	-5.9
04320	12	Z	500	29	6.5	0.5
04320	00	Z	500	30	14.2	1.3
04339	00	Z	500	25	7.3	-5.7
04339	12	Z	500	18	9.0	-7.7
04360	12	Z	500	19	13.5	-12.0
04360	00	Z	500	18	12.9	-11.8
06011	00	Z	500	30	7.3	5.0
06011	12	Z	500	31	8.4	6.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	500	5	4.2	0.9
06260	00	Z	500	29	1.9	-0.4
06610	00	Z	500	33	1.5	0.2
06610	12	Z	500	33	2.4	1.3
07110	00	Z	500	30	9.1	-8.0
07110	12	Z	500	32	6.4	-5.2
07510	12	Z	500	31	5.2	-3.5
07510	00	Z	500	31	5.5	-4.3
07645	00	Z	500	32	7.5	-7.1
07645	12	Z	500	31	8.5	-7.5
07761	12	Z	500	31	9.4	-8.8
07761	00	Z	500	31	12.5	-11.1
08001	12	Z	500	29	3.1	1.0
08001	00	Z	500	31	3.4	1.0
08221	00	Z	500	30	4.9	3.9
08221	12	Z	500	31	4.3	3.8
08302	12	Z	500	31	7.7	-7.0
08302	00	Z	500	31	6.6	-6.2
08508	12	Z	500	26	6.4	1.6
08522	12	Z	500	31	5.9	4.0
085790	12	Z	500	1	5.9	5.9
10035	00	Z	500	31	13.8	13.6
10035	12	Z	500	31	13.1	12.9
10393	12	Z	500	32	2.1	0.7
10393	00	Z	500	38	1.9	0.0
10410	00	Z	500	32	2.8	-0.7
10410	12	Z	500	31	2.6	-0.9
10739	00	Z	500	31	4.0	3.6
10739	12	Z	500	30	4.5	3.7
11035	12	Z	500	32	3.2	0.9
11035	00	Z	500	32	3.2	2.4
12982	00	Z	500	31	3.3	2.7
12982	12	Z	500	31	4.0	1.4
16245	00	Z	500	31	2.6	1.5
16245	12	Z	500	31	3.1	1.7
16429	00	Z	500	31	3.2	2.6
16429	12	Z	500	31	3.4	1.9
16622	00	Z	500	30	10.5	9.9
16754	00	Z	500	26	5.8	-0.2
17607	12	Z	500	31	3.4	1.3
26435	12	Z	500	14	2.5	1.4
2EERVT	12	Z	500	1	3.7	-3.7
2EERVT	00	Z	500	1	3.7	3.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	500	32	5.0	2.4
60018	12	Z	500	29	4.3	2.0
7JUNA4	12	Z	500	11	10.4	0.8
7JUNA4	00	Z	500	8	9.7	-4.6
ASDE09	12	Z	500	5	27.6	27.4
ATGU3F	12	Z	500	1	19.4	-19.4
ATGU3F	00	Z	500	1	1.0	-1.0
BPMWB2	12	Z	500	7	9.4	6.9
BPMWB2	00	Z	500	10	10.4	5.8
FPUW5G	12	Z	500	10	5.2	-0.6
HTXUH4	12	Z	500	5	46.0	40.7
HTXUH4	00	Z	500	8	23.8	16.4
JNKN7J	12	Z	500	13	30.9	30.3
JNKN7J	00	Z	500	10	39.3	38.8
KJJF9X	00	Z	500	2	15.6	15.6
KJJF9X	12	Z	500	2	12.7	0.3
KMPLHP	00	Z	500	6	43.3	41.5
KMPLHP	12	Z	500	9	38.8	38.1
LRYQE3	12	Z	500	12	7.1	-3.5
LRYQE3	00	Z	500	13	6.3	-2.9
UXK5JT	12	Z	500	9	11.2	-7.8
UXK5JT	00	Z	500	10	11.6	-9.1
WDK38H	12	Z	500	12	7.1	-6.0
XQFJRG	12	Z	500	6	7.4	-6.6
XQFJRG	00	Z	500	10	7.6	-5.2
YLV96W	00	Z	500	7	7.2	-3.9
YLV96W	12	Z	500	7	8.0	-2.2

4.6 Table 18 - Radiosonde Monitoring Statistics (EUCOS): 500 hPa Wind (m/s)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 500 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	500	30	3.3	0.6	-0.6
01001	00	V	500	30	2.6	0.3	0.5
01028	12	V	500	21	1.9	-0.6	-0.7
01028	00	V	500	21	2.6	1.1	-0.7
01400	12	V	500	27	2.4	-0.3	0.2
01400	00	V	500	30	1.8	0.0	0.2
01415	00	V	500	29	4.5	0.0	0.0
01415	12	V	500	30	3.0	-0.5	0.8
02365	12	V	500	16	2.4	0.0	-0.3
02365	00	V	500	17	1.8	0.2	0.2
02591	12	V	500	1	1.7	1.6	0.7
02836	00	V	500	30	2.0	0.3	-0.1
02836	12	V	500	31	2.5	0.1	0.5
02963	12	V	500	31	1.8	0.4	0.0
02963	00	V	500	26	1.9	0.3	0.2
03005	12	V	500	31	3.0	0.0	0.1
03005	00	V	500	28	2.5	0.0	0.4
03238	00	V	500	28	2.6	0.1	-0.2
03238	12	V	500	28	2.0	-0.4	0.4
03808	00	V	500	27	2.7	-0.3	0.5
03808	12	V	500	29	2.7	0.4	-0.2
03918	00	V	500	28	2.1	-0.1	0.0
03918	12	V	500	30	2.9	0.0	-0.5
03953	00	V	500	30	3.1	0.0	0.4
03953	12	V	500	31	2.8	-0.1	0.0
04018	12	V	500	25	4.1	-0.3	0.7
04018	00	V	500	29	3.3	0.3	0.0
04220	00	V	500	29	4.5	0.7	0.5
04220	12	V	500	31	2.8	-0.4	-0.6
04270	00	V	500	27	2.8	0.1	0.7
04270	12	V	500	24	3.0	-0.2	0.0
04320	12	V	500	29	2.7	0.4	0.1
04320	00	V	500	29	2.9	0.1	-0.1
04339	00	V	500	24	3.2	0.6	0.7
04339	12	V	500	18	2.3	0.1	0.2
04360	12	V	500	19	3.5	-0.5	0.6
04360	00	V	500	18	3.1	-0.1	-0.7
06011	00	V	500	29	3.5	-0.1	-0.3
06011	12	V	500	31	3.8	0.6	0.3

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	500	5	1.8	0.1	-0.7
06260	00	V	500	29	1.8	-0.3	0.1
06610	00	V	500	30	2.3	-0.2	0.0
06610	12	V	500	31	2.1	0.0	0.4
07110	00	V	500	29	2.8	-0.3	0.0
07110	12	V	500	30	3.1	-0.3	0.1
07510	12	V	500	31	2.8	-0.1	0.6
07510	00	V	500	30	2.4	0.2	0.0
07645	00	V	500	30	2.4	0.0	0.2
07645	12	V	500	31	1.9	0.2	-0.3
07761	12	V	500	31	2.4	0.7	-0.5
07761	00	V	500	30	2.5	0.7	-0.2
08001	12	V	500	29	2.9	0.1	-0.5
08001	00	V	500	30	2.7	0.2	0.6
08221	00	V	500	29	2.5	0.0	-0.2
08221	12	V	500	31	3.6	-0.3	0.7
08302	12	V	500	31	2.6	0.2	-0.1
08302	00	V	500	30	3.3	-0.1	0.4
08508	12	V	500	26	3.3	0.6	-0.1
08522	12	V	500	31	3.6	0.0	-0.5
085790	12	V	500	1	3.6	-2.9	2.1
10035	00	V	500	30	1.2	-0.3	0.2
10035	12	V	500	31	2.0	0.0	0.3
10393	12	V	500	31	2.1	0.0	0.3
10393	00	V	500	30	2.2	0.3	0.2
10410	00	V	500	30	1.7	-0.3	0.5
10410	12	V	500	31	2.4	0.2	-0.1
10739	00	V	500	30	2.4	0.2	-0.6
10739	12	V	500	30	1.4	0.2	-0.1
11035	12	V	500	31	2.0	0.5	0.1
11035	00	V	500	30	1.9	0.0	0.3
12982	00	V	500	30	1.9	-0.2	0.0
12982	12	V	500	31	2.1	-0.2	0.2
16245	00	V	500	30	2.4	0.0	-0.1
16245	12	V	500	31	2.1	0.1	0.2
16429	00	V	500	30	2.6	0.8	0.1
16429	12	V	500	31	2.4	1.0	0.1
16622	00	V	500	29	2.3	0.5	-0.3
16754	00	V	500	24	2.9	0.5	0.9
17607	12	V	500	26	3.0	1.4	0.6
26435	12	V	500	14	2.1	0.1	-0.1
2EERVT	12	V	500	1	1.3	1.0	-0.8
2EERVT	00	V	500	1	3.9	0.3	-3.9

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	500	30	3.3	0.7	0.3
60018	12	V	500	29	2.2	0.4	0.1
7JUNA4	12	V	500	11	2.9	-0.1	-0.4
7JUNA4	00	V	500	8	3.2	-1.1	-0.3
ASDE09	12	V	500	5	0.8	0.1	0.2
ATGU3F	12	V	500	1	1.6	1.1	1.2
ATGU3F	00	V	500	1	1.8	-0.2	1.8
BPMWB2	12	V	500	7	2.6	0.3	-1.1
BPMWB2	00	V	500	10	3.5	0.1	0.1
FPUW5G	12	V	500	10	2.4	-0.3	0.3
HTXUH4	12	V	500	5	2.3	-0.4	-0.2
HTXUH4	00	V	500	8	2.2	-1.5	-0.2
JNKN7J	12	V	500	13	3.3	0.0	1.5
JNKN7J	00	V	500	10	3.2	0.4	-0.3
KJJF9X	00	V	500	2	2.9	1.2	-1.5
KJJF9X	12	V	500	2	2.2	0.5	-1.1
KMPLHP	00	V	500	6	3.2	-1.0	0.5
KMPLHP	12	V	500	9	2.5	0.3	0.3
LRYQE3	12	V	500	12	2.6	-0.8	0.7
LRYQE3	00	V	500	13	3.3	-0.9	0.3
UXK5JT	12	V	500	9	4.2	-0.3	-0.9
UXK5JT	00	V	500	10	3.2	-1.1	-0.4
WDK38H	12	V	500	12	2.8	0.0	-0.6
XQFJRG	12	V	500	6	2.4	1.3	-0.2
XQFJRG	00	V	500	10	3.8	-0.1	1.0
YLV96W	00	V	500	7	4.2	0.8	-0.2
YLV96W	12	V	500	7	1.7	0.0	0.9

4.7 Table 19 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Geopotential height (metres)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : GEOPOTENTIAL HEIGHT (METRES)
         LEVEL                 : 850 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
01001	12	Z	850	30	8.2	-7.6
01001	00	Z	850	33	10.7	-9.4
01028	12	Z	850	22	3.1	-1.7
01028	00	Z	850	22	3.5	-2.7
01400	12	Z	850	28	77.0	76.8
01400	00	Z	850	31	75.8	74.3
01415	00	Z	850	30	3.3	2.7
01415	12	Z	850	30	3.8	3.4
02365	12	Z	850	16	3.9	2.9
02365	00	Z	850	17	3.6	2.4
02591	12	Z	850	1	8.3	8.3
02836	00	Z	850	31	1.9	1.2
02836	12	Z	850	34	2.4	1.7
02963	12	Z	850	34	3.5	3.0
02963	00	Z	850	27	2.5	1.8
03005	12	Z	850	32	2.4	-0.8
03005	00	Z	850	30	2.5	-1.2
03238	00	Z	850	30	2.9	2.3
03238	12	Z	850	30	3.5	2.8
03808	00	Z	850	31	2.5	1.1
03808	12	Z	850	30	15.4	4.3
03918	00	Z	850	30	6.3	6.0
03918	12	Z	850	30	6.9	6.3
03953	00	Z	850	31	2.7	-1.1
03953	12	Z	850	31	5.1	-0.5
04018	12	Z	850	26	2.4	-0.5
04018	00	Z	850	31	2.3	-0.5
04220	00	Z	850	31	15.9	7.0
04220	12	Z	850	31	16.8	7.4
04270	00	Z	850	28	7.0	-5.1
04270	12	Z	850	24	7.2	-3.3
04320	12	Z	850	29	6.2	0.1
04320	00	Z	850	30	13.0	1.9
04339	00	Z	850	25	9.4	-8.1
04339	12	Z	850	18	9.5	-7.4
04360	12	Z	850	19	13.4	-11.1
04360	00	Z	850	18	11.9	-9.9
06011	00	Z	850	30	5.1	3.1
06011	12	Z	850	31	5.9	4.7

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
06260	12	Z	850	5	1.7	0.4
06260	00	Z	850	29	2.7	-1.5
06610	00	Z	850	33	1.7	-0.6
06610	12	Z	850	33	2.1	-0.3
07110	00	Z	850	30	4.5	-3.5
07110	12	Z	850	33	2.6	-1.8
07510	12	Z	850	31	2.6	1.4
07510	00	Z	850	31	2.1	0.7
07645	00	Z	850	32	5.3	-4.8
07645	12	Z	850	31	4.9	-4.4
07761	12	Z	850	31	6.3	-6.0
07761	00	Z	850	31	6.6	-6.1
08001	12	Z	850	30	1.7	-0.2
08001	00	Z	850	31	2.6	0.0
08221	00	Z	850	30	3.3	2.9
08221	12	Z	850	31	3.9	2.9
08302	12	Z	850	31	7.3	-6.9
08302	00	Z	850	31	7.1	-6.9
08508	12	Z	850	26	4.9	2.1
08522	12	Z	850	31	3.5	2.6
085790	12	Z	850	1	1.9	-1.9
10035	00	Z	850	31	12.1	12.0
10035	12	Z	850	31	12.2	12.1
10393	12	Z	850	31	1.7	-0.1
10393	00	Z	850	31	1.6	-0.6
10410	00	Z	850	32	2.5	-2.1
10410	12	Z	850	31	2.2	-1.0
10739	00	Z	850	31	2.4	1.9
10739	12	Z	850	30	3.7	3.3
11035	12	Z	850	32	2.2	0.1
11035	00	Z	850	32	2.2	1.0
12982	00	Z	850	31	2.4	1.6
12982	12	Z	850	31	2.3	1.2
16245	00	Z	850	31	2.0	0.8
16245	12	Z	850	31	1.6	0.3
16429	00	Z	850	31	2.7	1.9
16429	12	Z	850	31	2.9	1.7
16622	00	Z	850	31	9.7	9.2
16754	00	Z	850	26	3.3	2.2
17607	12	Z	850	32	2.2	0.9
26435	12	Z	850	14	1.9	1.0
2EERVT	12	Z	850	1	4.6	-4.6
2EERVT	00	Z	850	1	3.6	-3.6

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	BIAS
60018	00	Z	850	32	2.1	-0.1
60018	12	Z	850	30	3.4	-0.4
7JUNA4	12	Z	850	12	12.0	1.4
7JUNA4	00	Z	850	9	7.6	-1.5
ASDE09	12	Z	850	5	32.6	32.6
ATGU3F	12	Z	850	1	15.5	-15.5
ATGU3F	00	Z	850	1	9.1	9.1
BPMWB2	12	Z	850	7	6.2	3.9
BPMWB2	00	Z	850	10	7.0	4.9
FPUW5G	12	Z	850	10	5.2	-2.8
HTXUH4	12	Z	850	5	53.5	48.9
HTXUH4	00	Z	850	8	26.6	18.8
JNKN7J	12	Z	850	13	37.8	37.4
JNKN7J	00	Z	850	10	41.8	41.5
KJJF9X	00	Z	850	2	12.6	12.5
KJJF9X	12	Z	850	2	5.5	1.7
KMPLHP	00	Z	850	6	50.4	48.9
KMPLHP	12	Z	850	9	44.5	44.0
LRYQE3	12	Z	850	12	6.7	-2.3
LRYQE3	00	Z	850	13	3.9	-0.9
UXK5JT	12	Z	850	8	6.0	-5.4
UXK5JT	00	Z	850	11	7.9	-6.7
WDK38H	12	Z	850	12	7.8	-7.0
XQFJRG	12	Z	850	7	10.2	-9.9
XQFJRG	00	Z	850	10	8.9	-7.2
YLV96W	00	Z	850	7	5.7	-4.5
YLV96W	12	Z	850	7	6.4	-2.0

4.8 Table 20 - Radiosonde Monitoring Statistics (EUCOS): 850 hPa Wind (m/s)

```
RADIOSONDE MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE     : ECMWF
         ELEMENT MONITORED     : WIND (M/S)
         LEVEL                 : 850 HPA
         AREA                  : 0 - 90N, 100W - 40E
         PERIOD                : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD
```

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
01001	12	V	850	29	3.5	0.2	1.2
01001	00	V	850	30	3.1	0.3	-0.1
01028	12	V	850	21	2.4	-0.2	-0.9
01028	00	V	850	21	2.3	0.3	-0.6
01400	12	V	850	28	2.3	1.1	-0.2
01400	00	V	850	30	2.1	0.1	0.0
01415	00	V	850	29	2.1	0.2	0.0
01415	12	V	850	30	3.2	1.2	-0.7
02365	12	V	850	16	2.6	0.4	0.2
02365	00	V	850	17	2.8	-0.1	0.9
02591	12	V	850	1	2.3	2.3	0.3
02836	00	V	850	30	2.2	0.2	0.5
02836	12	V	850	31	3.0	-0.6	-0.1
02963	12	V	850	31	2.1	-0.7	-0.1
02963	00	V	850	26	2.0	-0.2	0.0
03005	12	V	850	31	2.6	0.7	-0.5
03005	00	V	850	28	2.5	0.2	0.3
03238	00	V	850	28	2.3	0.0	0.2
03238	12	V	850	28	2.4	-0.4	0.5
03808	00	V	850	27	2.6	0.5	-0.2
03808	12	V	850	29	2.6	0.3	0.3
03918	00	V	850	29	2.6	-0.1	-0.6
03918	12	V	850	30	3.5	-0.1	0.4
03953	00	V	850	30	2.6	0.0	-0.4
03953	12	V	850	31	2.4	0.6	0.4
04018	12	V	850	26	3.5	-0.5	0.4
04018	00	V	850	29	2.8	0.2	0.5
04220	00	V	850	30	4.5	0.4	-1.3
04220	12	V	850	31	3.1	0.4	0.2
04270	00	V	850	27	4.3	1.0	1.5
04270	12	V	850	24	4.3	0.8	1.2
04320	12	V	850	29	3.5	0.2	-0.1
04320	00	V	850	29	3.3	-0.1	0.4
04339	00	V	850	24	3.8	1.0	-0.1
04339	12	V	850	18	6.0	1.7	-1.4
04360	12	V	850	19	6.6	3.3	-0.2
04360	00	V	850	18	4.6	1.3	0.1
06011	00	V	850	29	2.8	-0.1	0.0
06011	12	V	850	31	2.7	0.0	-0.5

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
06260	12	V	850	5	3.1	-0.4	1.1
06260	00	V	850	29	2.5	-0.5	-0.6
06610	00	V	850	30	2.2	0.3	-0.4
06610	12	V	850	31	2.1	0.2	-0.4
07110	00	V	850	29	2.9	0.1	0.3
07110	12	V	850	31	3.2	0.3	-0.4
07510	12	V	850	31	3.1	0.6	0.3
07510	00	V	850	30	2.8	0.5	0.3
07645	00	V	850	30	2.4	-0.3	-0.4
07645	12	V	850	31	2.9	0.8	-0.1
07761	12	V	850	31	3.3	0.7	-0.5
07761	00	V	850	30	2.8	0.8	-0.8
08001	12	V	850	29	2.7	0.0	-0.1
08001	00	V	850	30	3.8	-0.4	-1.0
08221	00	V	850	29	2.4	0.1	0.7
08221	12	V	850	31	3.7	1.3	0.0
08302	12	V	850	31	2.7	-0.2	-0.4
08302	00	V	850	30	3.1	-0.2	0.0
08508	12	V	850	26	4.3	-0.3	-1.4
08522	12	V	850	31	4.1	-0.2	-0.1
085790	12	V	850	1	2.2	1.3	-1.8
10035	00	V	850	30	2.3	0.2	0.1
10035	12	V	850	31	1.7	0.0	-0.3
10393	12	V	850	31	2.2	0.4	-0.3
10393	00	V	850	30	2.2	0.1	0.5
10410	00	V	850	30	2.1	-0.4	0.2
10410	12	V	850	31	2.1	-0.1	0.2
10739	00	V	850	30	1.9	0.4	-0.1
10739	12	V	850	30	2.3	0.4	-0.4
11035	12	V	850	31	2.4	0.0	0.0
11035	00	V	850	30	2.7	0.8	0.4
12982	00	V	850	30	2.3	0.1	-0.2
12982	12	V	850	31	2.4	0.4	0.6
16245	00	V	850	30	3.3	1.1	-0.8
16245	12	V	850	31	3.5	0.4	-1.0
16429	00	V	850	30	2.8	0.8	-0.7
16429	12	V	850	31	2.6	0.0	-0.5
16622	00	V	850	30	3.0	0.3	-0.4
16754	00	V	850	25	3.2	0.6	-0.5
17607	12	V	850	31	3.5	0.9	-0.3
26435	12	V	850	14	1.7	0.1	-0.5
2EERVT	12	V	850	1	0.9	0.5	-0.8
2EERVT	00	V	850	1	1.4	0.9	1.1

RADIOSONDE MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	OBS RECD	RMS	UBIAS	VBIAS
60018	00	V	850	30	4.3	-1.6	0.7
60018	12	V	850	30	4.6	-1.1	1.0
7JUNA4	12	V	850	12	2.5	0.1	0.1
7JUNA4	00	V	850	9	3.1	-0.1	0.3
ASDE09	12	V	850	5	1.7	-0.1	0.0
ATGU3F	12	V	850	1	3.0	-2.3	2.0
ATGU3F	00	V	850	1	3.4	2.8	2.0
BPMWB2	12	V	850	7	3.4	-0.3	-0.3
BPMWB2	00	V	850	10	2.2	0.3	0.0
FPUW5G	12	V	850	10	2.4	0.1	0.1
HTXUH4	12	V	850	5	2.4	-0.7	0.0
HTXUH4	00	V	850	8	2.2	0.6	0.0
JNKN7J	12	V	850	13	2.8	-0.1	0.6
JNKN7J	00	V	850	10	2.8	-0.7	-0.2
KJJF9X	00	V	850	2	0.9	0.9	0.2
KJJF9X	12	V	850	2	1.8	0.3	0.4
KMPLHP	00	V	850	6	1.6	0.2	0.1
KMPLHP	12	V	850	9	2.7	0.3	-0.2
LRYQE3	12	V	850	12	2.9	-0.1	0.9
LRYQE3	00	V	850	13	2.7	-0.6	0.7
UXK5JT	12	V	850	8	2.4	0.4	-0.1
UXK5JT	00	V	850	11	2.9	-0.5	-0.2
WDK38H	12	V	850	12	3.4	-0.3	-0.6
XQFJRG	12	V	850	7	2.8	0.0	0.3
XQFJRG	00	V	850	10	2.9	0.3	1.0
YLV96W	00	V	850	7	4.4	1.3	-0.4
YLV96W	12	V	850	7	2.5	0.0	0.4

4.9 Table 21 - Drifter Monitoring Statistics (EUCOS): Surface pressure (hpa)

```
DRIFTER MONITORING STATISTICS (EUCOS)
         MONITORING CENTRE      : ECMWF
         ELEMENT MONITORED      : SURFACE PRESSURE (HPA)
         AREA                   : 10N - 90N, 70W - 40E
         PERIOD                 : MAR 2022
         STANDARD OF COMPARISON: FIRST-GUESS FIELD


TIME = 99 => AVERAGE OF ALL OBSERVATIONS
GROSS ERROR LIMIT = 15 HPA
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
0041300	99	P	SUR	16	-57	6	0	0.1	0.2	0.2
03380	99	P	SUR	54	0	1893	0	0.3	-0.4	0.4
1300001	99	P	SUR	11	-23	606	0	0.3	0.2	0.4
1300008	99	P	SUR	15	-38	602	0	0.3	0.1	0.3
1300130	99	P	SUR	28	-16	725	0	0.4	0.1	0.4
1300131	99	P	SUR	28	-17	724	0	0.4	-0.1	0.4
1301603	99	P	SUR	36	-55	743	0	0.8	0.0	0.8
1301608	99	P	SUR	28	-63	744	0	0.3	0.0	0.3
1301610	99	P	SUR	53	-10	632	0	0.5	-0.1	0.5
1301612	99	P	SUR	27	-34	743	0	0.3	0.1	0.3
1301619	99	P	SUR	30	-70	743	0	0.5	-0.3	0.5
1301699	99	P	SUR	27	-30	734	0	0.2	-0.3	0.4
1301700	99	P	SUR	15	-34	738	0	0.3	0.0	0.3
1301701	99	P	SUR	14	-27	740	0	0.3	0.3	0.5
1301706	99	P	SUR	18	-33	731	0	0.3	0.2	0.3
1301708	99	P	SUR	14	-17	733	0	0.4	-0.2	0.4
1301711	99	P	SUR	12	-23	736	0	0.3	0.1	0.3
1301712	99	P	SUR	14	-27	740	0	0.3	0.2	0.3
1301713	99	P	SUR	19	-27	738	0	0.2	0.2	0.3
1301714	99	P	SUR	22	-31	737	0	0.2	0.2	0.3
1301715	99	P	SUR	13	-26	734	0	0.3	0.2	0.4
1301717	99	P	SUR	33	-9	732	0	1.6	-0.9	1.8
1301718	99	P	SUR	24	-25	737	0	0.3	0.3	0.4
1301719	99	P	SUR	21	-24	737	0	0.3	0.5	0.6
1301720	99	P	SUR	26	-22	739	0	0.3	0.2	0.3
1301721	99	P	SUR	38	-11	8901	1	0.3	-0.2	0.4
1301722	99	P	SUR	19	-29	738	0	0.3	0.1	0.3
1301723	99	P	SUR	37	-11	299	0	0.3	0.6	0.7
1301724	99	P	SUR	34	-15	262	0	0.3	-0.0	0.3
1301735	99	P	SUR	27	-42	737	0	0.2	-0.0	0.2
1301736	99	P	SUR	26	-44	736	0	0.2	0.3	0.4
1301737	99	P	SUR	23	-50	736	0	0.2	0.0	0.2
1301741	99	P	SUR	11	-20	661	0	0.3	0.2	0.4
1301763	99	P	SUR	10	-29	740	0	0.3	0.4	0.5
1801607	99	P	SUR	41	-50	3579	0	0.9	0.2	1.0
4100040	99	P	SUR	15	-53	4462	0	0.3	0.5	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4100043	99	P	SUR	21	-65	4411	0	0.3	-1.4	1.4
4100044	99	P	SUR	22	-59	4452	0	0.2	0.3	0.3
4100046	99	P	SUR	24	-68	4462	0	0.3	0.3	0.4
4100048	99	P	SUR	32	-70	4459	0	0.4	0.3	0.5
4100049	99	P	SUR	27	-63	4459	0	0.3	-1.0	1.1
4100052	99	P	SUR	18	-65	4341	0	0.2	-1.1	1.1
4100053	99	P	SUR	18	-66	4338	0	0.3	-0.5	0.5
4100056	99	P	SUR	18	-65	4296	0	1.0	2.9	3.1
4100139	99	P	SUR	20	-38	742	0	0.2	0.1	0.3
4100300	99	P	SUR	16	-57	734	0	0.2	0.1	0.3
4101557	99	P	SUR	42	-27	744	0	0.5	-0.0	0.5
4101567	99	P	SUR	22	-67	731	0	0.3	0.1	0.3
4101609	99	P	SUR	20	-29	744	0	0.2	0.1	0.3
4101613	99	P	SUR	29	-44	740	0	0.3	0.5	0.6
4101616	99	P	SUR	30	-39	744	0	0.3	0.1	0.3
4101618	99	P	SUR	23	-36	744	0	0.2	0.2	0.3
4101621	99	P	SUR	28	-29	744	0	0.3	0.3	0.4
4101654	99	P	SUR	72	5	731	0	0.5	0.0	0.5
4101656	99	P	SUR	65	-29	719	4	1.4	0.3	1.4
4101657	99	P	SUR	74	3	674	0	0.7	0.1	0.7
4101658	99	P	SUR	66	13	50	0	0.4	-3.2	3.2
4101659	99	P	SUR	75	37	744	0	0.4	0.1	0.4
4101663	99	P	SUR	33	-32	744	0	0.3	0.0	0.3
4101664	99	P	SUR	47	-45	744	0	0.6	-0.1	0.6
4101665	99	P	SUR	61	-10	731	0	0.4	-0.3	0.5
4101696	99	P	SUR	32	-41	744	0	0.3	-0.0	0.3
4101702	99	P	SUR	43	-25	744	0	1.2	-0.1	1.2
4101714	99	P	SUR	30	-59	744	0	0.3	0.0	0.3
4101717	99	P	SUR	40	-11	744	0	0.4	0.0	0.4
4101718	99	P	SUR	39	-48	744	12	1.7	-0.1	1.7
4101719	99	P	SUR	38	-38	743	0	1.7	0.4	1.8
4101720	99	P	SUR	34	-24	744	0	1.2	0.2	1.2
4101722	99	P	SUR	12	-31	744	0	0.3	0.7	0.8
4101723	99	P	SUR	22	-63	741	0	0.3	0.0	0.3
4101724	99	P	SUR	16	-65	743	0	0.3	0.0	0.3
4101725	99	P	SUR	17	-57	744	0	0.2	0.0	0.2
4101726	99	P	SUR	14	-47	743	0	0.3	0.3	0.5
4101743	99	P	SUR	30	-56	744	0	0.3	-0.0	0.3
4101752	99	P	SUR	47	-4	275	1	0.6	0.0	0.6
4101753	99	P	SUR	27	-62	744	0	0.3	0.3	0.5
4101755	99	P	SUR	26	-52	744	0	0.2	0.2	0.3
4101756	99	P	SUR	12	-62	694	0	0.3	-0.7	0.8
4101842	99	P	SUR	62	3	730	0	0.3	-0.2	0.3

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4101843	99	P	SUR	63	-2	730	0	0.3	0.1	0.3
4101844	99	P	SUR	15	-45	732	0	0.3	0.3	0.4
4101845	99	P	SUR	61	-9	731	0	0.4	0.1	0.4
4101848	99	P	SUR	20	-60	731	0	0.2	0.3	0.4
4101849	99	P	SUR	11	-42	730	0	0.3	0.4	0.5
4101850	99	P	SUR	45	-12	732	0	0.3	-0.0	0.3
4101851	99	P	SUR	19	-44	735	0	0.2	0.1	0.2
4102547	99	P	SUR	13	-55	602	0	0.3	0.2	0.4
4102548	99	P	SUR	19	-59	704	0	0.2	-0.1	0.2
4102549	99	P	SUR	17	-47	554	0	0.2	0.4	0.5
4102551	99	P	SUR	14	-39	262	0	0.2	0.1	0.2
4102632	99	P	SUR	22	-67	735	0	0.3	-0.9	1.0
41040	99	P	SUR	15	-53	5089	0	0.3	0.6	0.6
41043	99	P	SUR	21	-65	4435	0	0.3	-1.3	1.4
41044	99	P	SUR	22	-59	3362	0	0.3	0.3	0.4
41046	99	P	SUR	24	-68	6963	0	0.3	0.3	0.4
41048	99	P	SUR	32	-70	7412	0	0.4	0.3	0.5
41049	99	P	SUR	28	-63	6822	0	0.3	-1.0	1.1
41052	99	P	SUR	18	-65	2968	0	0.3	-1.0	1.1
41053	99	P	SUR	19	-66	3134	0	0.3	-0.5	0.6
41056	99	P	SUR	18	-66	3082	0	1.1	2.9	3.1
4200059	99	P	SUR	15	-67	4463	0	0.2	-1.3	1.3
4200060	99	P	SUR	16	-63	4295	0	0.3	0.0	0.3
4200085	99	P	SUR	18	-67	3940	0	0.3	0.1	0.3
4201703	99	P	SUR	42	-53	291	0	0.6	-0.0	0.6
42059	99	P	SUR	15	-68	4439	0	0.3	-1.3	1.4
42060	99	P	SUR	16	-63	4053	0	0.3	0.1	0.3
42085	99	P	SUR	18	-67	3400	0	0.3	0.0	0.3
4400005	99	P	SUR	43	-69	743	0	0.6	-0.3	0.7
4400008	99	P	SUR	40	-69	4463	0	0.6	-1.2	1.3
4400011	99	P	SUR	41	-67	4449	0	0.5	0.2	0.5
4400027	99	P	SUR	44	-67	743	0	0.5	0.1	0.5
4400032	99	P	SUR	44	-69	701	0	0.6	-0.1	0.6
4400033	99	P	SUR	44	-69	714	0	0.5	0.2	0.6
4400034	99	P	SUR	44	-68	711	0	0.5	-0.4	0.7
4400037	99	P	SUR	43	-68	652	0	0.6	-1.0	1.2
44005	99	P	SUR	43	-69	2314	0	0.6	-0.3	0.7
4400777	99	P	SUR	40	-29	744	0	0.5	0.0	0.5
44008	99	P	SUR	41	-69	6859	0	0.6	-1.2	1.3
4400857	99	P	SUR	30	-59	744	0	0.3	0.3	0.4
44011	99	P	SUR	41	-67	5995	0	0.5	0.2	0.6
4401557	99	P	SUR	26	-53	744	0	0.2	-0.1	0.2
4401563	99	P	SUR	31	-20	744	0	0.3	-0.2	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4401572	99	P	SUR	24	-65	744	0	0.3	0.1	0.3
4401576	99	P	SUR	25	-50	744	0	0.2	0.4	0.4
4401581	99	P	SUR	27	-53	744	0	0.2	0.5	0.5
4401582	99	P	SUR	38	-19	743	0	0.3	0.3	0.4
4401584	99	P	SUR	33	-31	744	0	0.3	0.4	0.5
4401585	99	P	SUR	38	-43	744	0	0.4	0.1	0.4
4401828	99	P	SUR	60	-20	564	0	0.5	0.4	0.7
4401837	99	P	SUR	39	-19	696	0	0.4	0.0	0.4
4401848	99	P	SUR	54	-10	722	0	0.5	-0.2	0.5
4401850	99	P	SUR	67	13	715	0	0.5	-0.4	0.6
4401851	99	P	SUR	47	-4	722	0	0.5	0.3	0.6
4401854	99	P	SUR	26	-68	744	0	0.2	-0.5	0.5
4401859	99	P	SUR	12	-36	744	0	0.3	0.6	0.7
4401864	99	P	SUR	10	-54	732	0	0.4	-0.2	0.5
4401867	99	P	SUR	37	-57	744	0	0.5	-0.2	0.5
4401870	99	P	SUR	27	-51	744	0	0.2	0.0	0.2
4401872	99	P	SUR	30	-60	744	0	0.3	-0.1	0.3
4401874	99	P	SUR	17	-56	744	0	0.2	0.2	0.3
4402603	99	P	SUR	51	-24	735	0	0.5	-0.0	0.5
4402604	99	P	SUR	47	-26	739	0	0.5	-0.2	0.5
4402605	99	P	SUR	56	-10	731	0	0.4	0.2	0.5
4402606	99	P	SUR	53	-35	734	0	0.5	-0.1	0.5
4402607	99	P	SUR	48	-27	725	0	0.6	-0.2	0.6
4402608	99	P	SUR	57	-34	732	0	0.5	-0.2	0.6
4402609	99	P	SUR	58	-20	727	0	0.5	0.0	0.5
4402610	99	P	SUR	45	-23	730	0	0.5	-0.2	0.5
4402611	99	P	SUR	48	-24	731	0	0.5	-0.2	0.5
4402612	99	P	SUR	46	-39	732	0	0.6	0.1	0.6
4402613	99	P	SUR	45	-14	722	0	0.3	-0.0	0.3
4402614	99	P	SUR	51	-11	727	0	0.4	0.1	0.4
4402615	99	P	SUR	46	-15	722	0	0.4	0.2	0.5
4402618	99	P	SUR	26	-47	736	0	0.2	0.2	0.3
4402656	99	P	SUR	42	-61	727	0	0.5	0.3	0.6
4402660	99	P	SUR	35	-13	739	0	0.3	0.2	0.4
4402663	99	P	SUR	45	-10	737	0	0.3	-0.1	0.4
4402665	99	P	SUR	27	-28	738	0	0.2	0.5	0.5
4402670	99	P	SUR	20	-26	731	0	0.3	0.1	0.3
4402671	99	P	SUR	15	-31	731	0	0.3	0.2	0.4
4402672	99	P	SUR	16	-30	729	0	0.3	0.1	0.3
4402673	99	P	SUR	16	-30	733	0	0.3	0.3	0.4
4402674	99	P	SUR	15	-29	730	0	0.3	0.3	0.5
4402675	99	P	SUR	35	-46	729	0	0.4	0.0	0.4
4402676	99	P	SUR	19	-31	734	0	0.2	0.4	0.5

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
4402687	99	P	SUR	38	-26	598	0	1.2	0.2	1.2
44027	99	P	SUR	44	-67	2311	0	0.5	0.1	0.6
4402708	99	P	SUR	14	-29	501	0	0.3	0.3	0.4
4402712	99	P	SUR	68	-66	741	0	0.5	0.2	0.5
4402717	99	P	SUR	70	-68	736	0	0.5	0.6	0.8
4402721	99	P	SUR	46	-42	738	0	0.6	-0.0	0.6
4402723	99	P	SUR	46	-51	738	1	0.7	0.1	0.7
4402726	99	P	SUR	53	-50	738	0	0.6	-0.1	0.6
4402727	99	P	SUR	45	-44	736	0	0.5	-0.2	0.6
44032	99	P	SUR	44	-69	1520	0	0.6	-0.2	0.6
44033	99	P	SUR	44	-69	1537	0	0.5	0.3	0.6
44034	99	P	SUR	44	-68	1531	0	0.6	-0.4	0.7
4403556	99	P	SUR	44	-42	743	33	1.6	0.1	1.6
4403557	99	P	SUR	49	-36	739	0	0.5	0.1	0.5
4403558	99	P	SUR	44	-51	743	0	0.5	0.0	0.5
4403559	99	P	SUR	47	-49	564	2	0.5	0.5	0.7
44037	99	P	SUR	44	-68	1392	0	0.6	-1.0	1.2
44137	99	P	SUR	42	-62	857	0	0.5	-0.4	0.6
44139	99	P	SUR	44	-57	908	0	0.6	-0.2	0.6
44150	99	P	SUR	43	-64	937	0	0.6	-0.4	0.7
44258	99	P	SUR	45	-63	949	0	0.6	-0.2	0.6
44488	99	P	SUR	45	-61	958	0	0.5	-0.0	0.5
44489	99	P	SUR	46	-61	956	0	0.5	-0.0	0.5
44490	99	P	SUR	45	-66	870	0	0.6	0.0	0.6
4601782	99	P	SUR	42	-41	721	35	2.2	-0.1	2.2
4701518	99	P	SUR	84	-13	150	0	0.3	0.2	0.3
4701519	99	P	SUR	84	-13	149	0	0.2	0.0	0.2
4701738	99	P	SUR	70	-67	723	723	0.0	0.0	0.0
4801723	99	P	SUR	68	-4	739	0	0.5	0.2	0.6
4801727	99	P	SUR	78	1	740	28	3.9	0.1	3.9
6100001	99	P	SUR	43	8	739	0	0.3	-0.4	0.6
6100002	99	P	SUR	42	5	740	0	0.4	-0.1	0.4
6100196	99	P	SUR	42	4	724	0	0.4	0.3	0.5
6100197	99	P	SUR	40	4	725	0	0.4	0.3	0.5
6100198	99	P	SUR	37	-2	576	0	0.7	0.2	0.7
6100280	99	P	SUR	41	1	712	0	0.4	0.2	0.5
6100281	99	P	SUR	40	0	682	0	0.5	0.4	0.7
6100417	99	P	SUR	38	0	722	0	0.5	0.3	0.6
6100430	99	P	SUR	40	2	724	0	0.4	0.3	0.5
6101003	99	P	SUR	40	25	175	0	0.5	-0.1	0.5
6101007	99	P	SUR	36	25	164	0	0.6	-0.5	0.8
6101008	99	P	SUR	37	22	169	0	0.5	-0.2	0.6
6101009	99	P	SUR	35	25	22	22	0.0	0.0	0.0

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6102784	99	P	SUR	31	34	731	0	0.4	-0.3	0.5
6102786	99	P	SUR	32	19	733	0	0.6	0.4	0.7
6102787	99	P	SUR	34	20	735	0	0.6	0.4	0.7
6102788	99	P	SUR	33	31	566	0	0.5	0.2	0.5
6102789	99	P	SUR	31	28	734	0	0.4	0.0	0.4
6102791	99	P	SUR	37	10	740	0	0.4	-0.1	0.4
6102792	99	P	SUR	39	8	477	0	0.3	-0.2	0.4
6102793	99	P	SUR	38	2	738	0	0.4	0.7	0.8
6102796	99	P	SUR	39	5	735	0	0.4	0.2	0.5
6102797	99	P	SUR	38	2	738	0	0.6	0.6	0.8
6102798	99	P	SUR	38	2	728	0	0.5	0.4	0.6
6102799	99	P	SUR	39	2	738	0	0.4	0.4	0.6
6102800	99	P	SUR	38	0	735	0	0.4	0.5	0.6
6102801	99	P	SUR	38	1	738	0	0.4	0.4	0.6
6200024	99	P	SUR	44	-3	713	0	0.5	0.3	0.6
6200025	99	P	SUR	44	-6	728	0	0.4	0.3	0.5
6200082	99	P	SUR	44	-8	724	0	0.4	0.2	0.5
6200083	99	P	SUR	43	-9	718	0	0.8	0.1	0.8
6200084	99	P	SUR	42	-9	492	0	0.5	0.2	0.5
6200085	99	P	SUR	36	-7	573	0	0.5	0.0	0.5
6200086	99	P	SUR	55	6	343	0	0.3	-0.3	0.4
6200087	99	P	SUR	55	7	492	0	0.4	-0.4	0.6
6200091	99	P	SUR	53	-5	744	0	0.4	-0.1	0.4
6200092	99	P	SUR	51	-11	744	0	0.4	-0.1	0.4
6200093	99	P	SUR	55	-10	743	0	0.4	-0.2	0.5
6200094	99	P	SUR	52	-7	744	0	0.4	-0.1	0.4
62001	99	P	SUR	45	-5	1985	0	0.4	-0.1	0.4
6201065	99	P	SUR	54	7	730	0	0.3	0.8	0.8
6201066	99	P	SUR	55	7	889	0	0.3	0.2	0.4
6202614	99	P	SUR	21	-61	744	0	0.2	-0.2	0.3
6202623	99	P	SUR	65	1	744	0	0.5	-0.2	0.5
6202624	99	P	SUR	61	-8	743	0	0.4	0.1	0.4
6202626	99	P	SUR	55	-6	187	0	0.9	-3.0	3.1
6202627	99	P	SUR	63	-19	736	0	0.4	0.1	0.5
6202629	99	P	SUR	39	-43	188	0	0.5	-1.0	1.2
6202630	99	P	SUR	45	-2	744	0	0.4	-0.1	0.4
6202632	99	P	SUR	62	-25	742	0	0.6	-0.1	0.6
6202633	99	P	SUR	63	4	743	0	0.3	0.0	0.3
6202635	99	P	SUR	72	31	744	0	0.4	0.2	0.4
6202637	99	P	SUR	69	-6	744	0	0.4	0.1	0.5
6202639	99	P	SUR	29	-34	744	0	0.3	0.1	0.3
6202640	99	P	SUR	31	-42	744	0	0.2	-0.3	0.4
6202643	99	P	SUR	26	-63	744	0	0.2	-0.1	0.2

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6202644	99	P	SUR	30	-41	744	0	0.3	-0.2	0.3
6202645	99	P	SUR	28	-61	744	0	0.2	-0.4	0.5
62029	99	P	SUR	49	-13	1917	0	0.4	-0.0	0.4
6203516	99	P	SUR	44	-62	727	0	0.5	-0.3	0.5
6203588	99	P	SUR	63	-38	731	0	0.9	0.8	1.2
6203601	99	P	SUR	33	-52	744	0	0.4	-0.2	0.4
6203607	99	P	SUR	37	-54	743	0	0.6	0.1	0.7
6203612	99	P	SUR	27	-44	744	0	0.3	0.4	0.5
6203613	99	P	SUR	21	-55	744	3	1.6	0.6	1.7
6203614	99	P	SUR	25	-60	744	0	0.3	0.3	0.4
6203615	99	P	SUR	22	-64	744	0	0.3	-0.2	0.4
6203616	99	P	SUR	20	-44	744	0	0.3	0.5	0.6
6203617	99	P	SUR	16	-41	744	0	0.3	0.2	0.3
6203621	99	P	SUR	39	-20	743	0	0.7	0.5	0.8
6203622	99	P	SUR	44	-29	743	0	0.5	0.1	0.5
6203624	99	P	SUR	24	-69	744	0	0.3	-0.2	0.3
6203625	99	P	SUR	40	-29	744	0	0.4	-0.7	0.8
6203626	99	P	SUR	60	-1	723	0	0.8	-0.5	1.0
6203627	99	P	SUR	24	-57	744	0	0.2	0.2	0.3
6203632	99	P	SUR	27	-30	743	0	0.3	0.3	0.4
6203633	99	P	SUR	59	-6	744	0	0.3	0.3	0.4
6203634	99	P	SUR	33	-23	744	0	0.3	0.2	0.4
6203635	99	P	SUR	20	-57	744	0	0.3	0.5	0.5
6203639	99	P	SUR	39	-21	744	0	0.4	-0.4	0.6
6203640	99	P	SUR	38	-18	741	0	0.3	-0.2	0.4
6203642	99	P	SUR	15	-34	744	0	0.3	0.4	0.5
6203643	99	P	SUR	25	-58	744	0	0.2	0.4	0.5
6203644	99	P	SUR	13	-62	744	0	1.5	0.2	1.5
6203649	99	P	SUR	48	-19	635	0	2.2	-0.2	2.2
6203730	99	P	SUR	21	-46	726	0	0.2	0.2	0.3
6203732	99	P	SUR	19	-61	726	0	0.2	-1.3	1.4
6203734	99	P	SUR	15	-24	622	0	0.3	0.2	0.4
6203735	99	P	SUR	18	-64	724	0	0.2	0.0	0.2
6203737	99	P	SUR	28	-40	734	0	0.3	0.5	0.5
6203747	99	P	SUR	62	-4	729	0	0.3	0.1	0.3
6203749	99	P	SUR	67	11	731	0	0.5	0.1	0.5
6203750	99	P	SUR	62	1	731	0	0.3	0.2	0.4
6203751	99	P	SUR	66	11	703	0	1.0	1.7	2.0
6203753	99	P	SUR	60	-21	730	0	0.5	-0.2	0.5
6203755	99	P	SUR	46	-6	736	0	0.3	-0.8	0.8
6203760	99	P	SUR	57	8	615	0	0.3	0.3	0.4
6203765	99	P	SUR	23	-38	729	0	0.3	0.8	0.9
6203767	99	P	SUR	19	-40	732	0	0.2	-0.3	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6203768	99	P	SUR	37	-13	13	0	0.3	0.1	0.4
6203771	99	P	SUR	24	-28	731	0	0.3	0.2	0.4
6203772	99	P	SUR	23	-43	730	0	0.2	0.3	0.4
6203773	99	P	SUR	28	-43	738	0	0.3	-0.2	0.3
6203776	99	P	SUR	36	-27	642	0	0.3	-0.0	0.3
6203777	99	P	SUR	21	-59	731	0	0.2	0.1	0.2
6203825	99	P	SUR	62	-12	739	1	0.6	0.4	0.7
6203827	99	P	SUR	63	-13	739	0	0.4	0.2	0.5
6203838	99	P	SUR	15	-43	739	0	0.2	0.3	0.4
6203839	99	P	SUR	18	-35	737	0	0.2	0.0	0.2
6203840	99	P	SUR	22	-31	738	0	0.2	0.3	0.4
6203841	99	P	SUR	29	-15	738	0	0.3	0.0	0.3
6203842	99	P	SUR	40	-41	47	0	0.5	0.1	0.5
6203843	99	P	SUR	28	-18	516	0	0.5	-0.6	0.8
6203845	99	P	SUR	42	-44	47	0	1.5	0.0	1.5
6203846	99	P	SUR	27	-17	738	0	0.3	0.0	0.3
62050	99	P	SUR	50	-4	1729	1	0.3	-0.2	0.4
62081	99	P	SUR	51	-13	1920	0	0.5	-0.2	0.5
62102	99	P	SUR	58	2	1944	0	0.6	0.4	0.8
62103	99	P	SUR	50	-3	1940	0	0.4	-0.3	0.5
62104	99	P	SUR	57	1	1888	0	0.3	0.0	0.3
62107	99	P	SUR	50	-6	2431	0	0.4	-0.3	0.5
62112	99	P	SUR	58	0	2022	0	0.3	0.2	0.4
62113	99	P	SUR	58	0	1879	0	0.4	-0.2	0.5
62114	99	P	SUR	58	0	2633	0	0.3	0.1	0.3
62115	99	P	SUR	58	-3	1970	0	0.4	-0.3	0.5
62116	99	P	SUR	58	1	1945	0	0.5	0.2	0.6
62118	99	P	SUR	58	1	1925	0	0.3	0.3	0.4
62119	99	P	SUR	57	2	1941	0	0.3	-0.0	0.3
62120	99	P	SUR	56	2	1903	0	0.3	-0.2	0.3
62121	99	P	SUR	54	3	1895	0	0.4	0.1	0.4
62122	99	P	SUR	57	2	2446	0	0.3	-0.0	0.3
62124	99	P	SUR	54	-4	1606	0	0.4	0.1	0.4
62127	99	P	SUR	54	1	1950	0	0.2	0.5	0.5
62129	99	P	SUR	58	0	998	0	0.4	0.0	0.4
62130	99	P	SUR	59	1	1941	0	0.3	-0.1	0.3
62131	99	P	SUR	54	1	1893	0	0.4	0.6	0.7
62132	99	P	SUR	56	2	1901	0	0.3	0.3	0.4
62133	99	P	SUR	57	1	1971	0	0.6	0.4	0.7
62138	99	P	SUR	54	0	2556	0	0.3	0.2	0.4
62140	99	P	SUR	57	1	2563	0	0.3	0.2	0.3
62141	99	P	SUR	58	0	1943	0	0.7	-0.1	0.7
62143	99	P	SUR	58	2	1945	0	0.3	0.5	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
62144	99	P	SUR	53	2	1962	0	0.3	-0.0	0.3
62145	99	P	SUR	53	3	2627	0	0.3	0.2	0.3
62146	99	P	SUR	57	2	1956	0	0.3	-0.2	0.3
62149	99	P	SUR	54	1	1953	0	0.2	0.6	0.6
62151	99	P	SUR	57	2	2288	0	0.3	0.3	0.5
62152	99	P	SUR	57	2	1950	0	0.3	0.2	0.3
62153	99	P	SUR	57	2	2400	0	0.3	0.9	1.0
62154	99	P	SUR	56	2	1962	0	0.3	-0.1	0.3
62155	99	P	SUR	58	1	1942	0	0.3	0.3	0.4
62157	99	P	SUR	58	0	1940	0	0.3	-0.1	0.3
62160	99	P	SUR	57	2	2624	0	0.3	0.5	0.6
62161	99	P	SUR	58	1	1904	0	0.4	-0.0	0.4
62162	99	P	SUR	57	1	1955	0	0.3	0.1	0.3
62163	99	P	SUR	48	-8	2024	0	0.4	0.2	0.4
62164	99	P	SUR	57	1	1904	0	0.4	0.4	0.5
62165	99	P	SUR	54	1	1920	0	0.3	0.4	0.5
62168	99	P	SUR	58	1	1944	0	0.3	-0.0	0.3
62170	99	P	SUR	51	2	1960	0	0.4	-0.2	0.4
62296	99	P	SUR	53	2	1900	0	0.3	-0.0	0.3
62297	99	P	SUR	59	2	2529	0	0.3	-0.0	0.3
62302	99	P	SUR	61	-2	1910	0	0.5	-0.1	0.5
62304	99	P	SUR	51	2	1937	0	0.4	-0.5	0.7
62305	99	P	SUR	50	0	2714	0	0.4	-0.1	0.4
62442	99	P	SUR	49	-16	1730	0	0.5	-0.4	0.7
6301001	99	P	SUR	64	5	582	0	0.6	-0.2	0.6
6301003	99	P	SUR	74	24	711	8	2.5	-0.7	2.6
6301004	99	P	SUR	72	20	713	0	0.4	-0.4	0.6
6301570	99	P	SUR	60	-11	56	0	0.4	0.1	0.4
6301572	99	P	SUR	72	-11	539	22	3.6	-0.5	3.6
6301573	99	P	SUR	84	-15	744	0	0.5	0.1	0.5
6301575	99	P	SUR	84	-15	742	0	0.5	0.1	0.5
6301576	99	P	SUR	75	-12	743	0	0.6	-0.5	0.8
6301577	99	P	SUR	62	-4	744	0	0.3	0.4	0.5
6301578	99	P	SUR	69	-12	743	0	0.5	0.3	0.6
6301579	99	P	SUR	69	-13	444	0	0.5	0.5	0.7
63055	99	P	SUR	61	2	1950	0	0.5	-0.3	0.6
63056	99	P	SUR	60	2	1953	0	0.9	0.6	1.1
63057	99	P	SUR	59	2	1950	0	0.3	-0.1	0.3
63058	99	P	SUR	53	2	2248	0	0.3	-0.1	0.3
63059	99	P	SUR	58	-1	1983	0	0.4	0.4	0.5
63101	99	P	SUR	61	1	1945	0	0.7	0.2	0.8
63102	99	P	SUR	61	1	1953	0	0.4	-0.1	0.5
63103	99	P	SUR	61	1	1955	0	0.4	0.0	0.4

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
63108	99	P	SUR	61	2	1949	0	0.4	-0.3	0.5
63109	99	P	SUR	60	2	1890	0	0.3	-0.6	0.7
63110	99	P	SUR	60	2	1950	0	0.8	-0.0	0.8
63111	99	P	SUR	61	2	2540	0	0.4	-0.6	0.7
63112	99	P	SUR	61	1	1951	0	0.3	-0.4	0.5
63115	99	P	SUR	62	1	1948	0	0.4	-0.3	0.5
63117	99	P	SUR	61	1	2545	0	0.8	0.7	1.1
63118	99	P	SUR	58	-4	2060	0	0.5	-0.2	0.5
6401531	99	P	SUR	53	-9	682	0	0.4	-0.1	0.4
6401574	99	P	SUR	60	-14	744	0	0.7	0.2	0.7
6401575	99	P	SUR	68	12	744	0	0.4	0.2	0.5
6401576	99	P	SUR	72	-22	744	0	0.9	0.1	0.9
6401578	99	P	SUR	78	-19	744	0	0.5	0.4	0.7
6401592	99	P	SUR	64	-15	744	0	0.4	0.3	0.5
6401759	99	P	SUR	55	-43	744	0	0.7	0.1	0.7
6401760	99	P	SUR	60	-52	744	0	0.9	0.1	0.9
6401761	99	P	SUR	56	-54	744	0	0.6	0.2	0.6
6401762	99	P	SUR	67	-5	744	0	0.4	0.4	0.6
6401763	99	P	SUR	66	12	740	0	0.6	-0.5	0.8
6401839	99	P	SUR	64	7	505	0	0.4	0.3	0.5
6401840	99	P	SUR	71	19	618	0	0.8	0.2	0.8
6401842	99	P	SUR	65	-35	468	0	1.0	0.5	1.1
6401843	99	P	SUR	62	-5	540	0	0.3	0.2	0.4
6402539	99	P	SUR	55	-9	729	0	0.5	0.1	0.5
6402541	99	P	SUR	68	-16	116	0	0.4	0.6	0.7
6402543	99	P	SUR	57	-35	691	0	0.5	-0.0	0.5
6402544	99	P	SUR	71	2	728	0	0.5	0.1	0.5
6402545	99	P	SUR	79	6	258	80	5.9	5.1	7.8
6402547	99	P	SUR	53	-34	731	0	0.6	-0.2	0.7
6402548	99	P	SUR	80	8	645	53	5.8	5.7	8.2
6402550	99	P	SUR	75	33	179	0	0.4	0.2	0.5
6402551	99	P	SUR	57	-53	715	0	0.6	0.0	0.6
6402552	99	P	SUR	66	-1	584	0	0.4	0.3	0.5
6402554	99	P	SUR	68	10	372	0	0.4	0.4	0.6
6402557	99	P	SUR	71	-4	718	0	0.5	0.2	0.5
6402559	99	P	SUR	57	-55	39	0	0.2	0.6	0.6
6402560	99	P	SUR	68	-6	597	0	0.5	0.1	0.5
6402561	99	P	SUR	68	-21	711	0	0.6	0.4	0.7
6402562	99	P	SUR	63	-52	676	0	1.7	0.0	1.7
6402563	99	P	SUR	69	9	643	0	0.5	0.4	0.7
6402587	99	P	SUR	53	-51	617	18	3.4	8.5	9.2
6402592	99	P	SUR	60	-56	15	0	0.5	-0.6	0.7
6402594	99	P	SUR	58	-54	676	0	0.6	-0.2	0.6

DRIFTER MONITORING STATISTICS (EUCOS)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS
6402596	99	P	SUR	56	-39	577	0	0.5	-0.2	0.6
6402597	99	P	SUR	56	-55	682	0	0.6	-0.3	0.7
6402599	99	P	SUR	53	-48	530	0	0.6	0.1	0.6
6402611	99	P	SUR	49	-46	583	0	0.5	0.2	0.5
6402615	99	P	SUR	17	-39	727	0	0.2	0.3	0.4
6402616	99	P	SUR	18	-39	732	0	0.2	0.4	0.5
6402617	99	P	SUR	18	-33	731	0	0.2	0.4	0.5
6402618	99	P	SUR	20	-23	731	0	0.3	0.4	0.5
6402619	99	P	SUR	41	-11	730	0	0.3	0.2	0.4
6402620	99	P	SUR	47	-11	732	0	0.3	0.5	0.6
6402621	99	P	SUR	43	-14	729	0	0.3	0.4	0.5
6402622	99	P	SUR	40	-13	731	0	0.3	0.1	0.3
6402654	99	P	SUR	59	-8	532	0	0.4	0.1	0.4
6402655	99	P	SUR	67	-2	621	1	0.4	0.3	0.5
6402656	99	P	SUR	56	-42	603	5	3.4	7.6	8.3
6402659	99	P	SUR	65	3	725	0	0.6	0.0	0.6
6402660	99	P	SUR	66	-23	577	0	0.6	-0.5	0.8
6402661	99	P	SUR	62	-12	528	0	0.4	0.2	0.4
6402663	99	P	SUR	63	-24	698	1	0.5	-0.2	0.5
6402665	99	P	SUR	68	3	604	0	0.4	0.3	0.5
6402666	99	P	SUR	64	-21	724	0	0.5	-0.5	0.7
6402667	99	P	SUR	62	-21	728	0	0.7	-0.7	1.0
6402668	99	P	SUR	62	-4	729	0	0.4	0.5	0.6
6402680	99	P	SUR	61	-13	84	0	0.3	-0.1	0.3
6402681	99	P	SUR	67	-3	32	0	0.4	0.4	0.6
6402682	99	P	SUR	62	-41	1	0	0.0	-0.5	0.5
6402683	99	P	SUR	65	-30	135	0	1.9	-0.2	1.9
6402684	99	P	SUR	67	-17	133	0	0.6	0.4	0.7
6402685	99	P	SUR	65	-9	133	0	0.5	1.0	1.1
64041	99	P	SUR	61	-3	1907	0	0.4	-0.4	0.5
64045	99	P	SUR	59	-12	1926	0	0.4	-0.2	0.5
6501670	99	P	SUR	78	4	725	0	0.8	0.1	0.8
6501671	99	P	SUR	80	18	519	1	3.2	-0.7	3.2
6501674	99	P	SUR	80	16	404	1	3.8	-0.7	3.9
6501675	99	P	SUR	74	-9	682	0	0.5	0.2	0.6
6501679	99	P	SUR	74	-12	712	0	0.6	0.1	0.6
6501687	99	P	SUR	80	29	158	0	0.4	-0.1	0.4
6501689	99	P	SUR	81	28	2151	313	7.0	-0.7	7.0
6600021	99	P	SUR	55	14	9	9	0.0	0.0	0.0

4.10 Table 22 - Drifter Monitoring Statistics (EUCOS): Wind speed (m/s)

```
          DRIFTER MONITORING STATISTICS (EUCOS)
                   MONITORING CENTRE     : ECMWF
                   ELEMENT MONITORED     : WIND SPEED (M/S)
                   AREA                  : 10N - 90N, 70W - 40E
                   PERIOD                : MAR 2022
                   STANDARD OF COMPARISON: FIRST-GUESS FIELD


TIME = 99 => AVERAGE OF ALL OBSERVATIONS


GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
0041300	99	SPEED	SUR	16	-57	6	0	0	0.5	-0.7	0.9
1300001	99	SPEED	SUR	11	-23	606	0	0	0.6	0.5	0.8
1300002	99	SPEED	SUR	20	-23	600	0	0	0.8	-0.0	0.8
1300008	99	SPEED	SUR	15	-38	602	0	0	0.9	-0.3	1.0
1300130	99	SPEED	SUR	28	-16	725	0	0	1.1	-0.3	1.1
1300131	99	SPEED	SUR	28	-17	722	0	0	2.3	1.2	2.6
1801607	99	SPEED	SUR	41	-50	3579	0	0	1.6	-0.4	1.7
4100040	99	SPEED	SUR	15	-53	4462	0	0	1.0	-0.0	1.0
4100043	99	SPEED	SUR	21	-65	4460	0	0	0.9	-0.2	1.0
4100046	99	SPEED	SUR	24	-68	4210	0	0	1.1	0.1	1.1
4100048	99	SPEED	SUR	32	-70	4458	0	0	1.2	0.3	1.3
4100049	99	SPEED	SUR	27	-63	4432	0	0	1.0	0.0	1.0
4100052	99	SPEED	SUR	18	-65	4342	0	0	0.9	-0.4	1.0
4100053	99	SPEED	SUR	18	-66	4338	0	0	1.5	1.3	2.0
4100056	99	SPEED	SUR	18	-65	4296	0	0	1.2	-1.0	1.5
4100139	99	SPEED	SUR	20	-38	742	0	0	1.0	-0.2	1.0
4100300	99	SPEED	SUR	16	-57	732	0	0	1.0	-1.6	1.8
41040	99	SPEED	SUR	15	-53	5089	0	0	1.0	-0.4	1.1
41043	99	SPEED	SUR	21	-65	4486	0	0	1.0	-0.3	1.0
41044	99	SPEED	SUR	22	-59	13	0	0	0.4	-0.3	0.5
41046	99	SPEED	SUR	24	-68	6697	0	0	1.1	-0.1	1.1
41048	99	SPEED	SUR	32	-70	7404	0	0	1.3	0.2	1.3
41049	99	SPEED	SUR	28	-63	6787	0	0	1.1	-0.1	1.1
41052	99	SPEED	SUR	18	-65	2969	0	0	0.9	-0.2	1.0
41053	99	SPEED	SUR	19	-66	3134	0	0	1.5	0.5	1.5
41056	99	SPEED	SUR	18	-66	3082	0	0	1.2	-0.7	1.4
4200059	99	SPEED	SUR	15	-67	4463	0	0	0.7	0.2	0.8
4200085	99	SPEED	SUR	18	-67	3966	0	0	1.3	-0.8	1.6
42059	99	SPEED	SUR	15	-68	4439	0	0	0.8	-0.2	0.8
42060	99	SPEED	SUR	16	-63	13	0	0	1.6	-0.6	1.7
42085	99	SPEED	SUR	18	-67	3417	0	0	1.3	-0.5	1.4
4400005	99	SPEED	SUR	43	-69	743	0	0	1.4	0.2	1.4
4400008	99	SPEED	SUR	40	-69	4463	0	0	1.5	0.3	1.5
4400027	99	SPEED	SUR	44	-67	743	0	0	1.8	0.0	1.8

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND SPEED (M/S) (CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
4400032	99	SPEED	SUR	44	-69	702	0	0	1.7	0.4	1.7
4400033	99	SPEED	SUR	44	-69	714	0	0	1.6	0.1	1.6
4400034	99	SPEED	SUR	44	-68	711	0	0	1.6	-0.2	1.6
4400037	99	SPEED	SUR	43	-68	651	0	0	1.2	-0.2	1.2
44005	99	SPEED	SUR	43	-69	2314	0	0	1.4	0.2	1.4
44008	99	SPEED	SUR	41	-69	6859	0	0	1.5	-0.4	1.5
44027	99	SPEED	SUR	44	-67	2311	0	0	1.8	0.1	1.8
44032	99	SPEED	SUR	44	-69	1522	0	0	1.7	0.4	1.8
44033	99	SPEED	SUR	44	-69	1537	0	0	1.6	0.5	1.7
44034	99	SPEED	SUR	44	-68	1531	0	0	1.7	-0.1	1.7
44037	99	SPEED	SUR	44	-68	1392	0	0	1.3	-0.2	1.3
44137	99	SPEED	SUR	42	-62	854	0	0	1.9	0.0	1.9
44139	99	SPEED	SUR	44	-57	908	0	0	1.6	-0.1	1.6
44150	99	SPEED	SUR	43	-64	935	0	0	1.4	-0.3	1.5
44258	99	SPEED	SUR	45	-63	949	0	0	1.9	-0.1	1.9
44489	99	SPEED	SUR	46	-61	950	0	0	1.8	0.9	2.1
44490	99	SPEED	SUR	45	-66	868	0	0	1.9	-0.4	1.9
6100001	99	SPEED	SUR	43	8	738	0	0	1.7	-0.9	1.9
6100002	99	SPEED	SUR	42	5	737	0	0	1.3	-0.7	1.5
6100196	99	SPEED	SUR	42	4	724	0	0	1.6	-0.1	1.6
6100197	99	SPEED	SUR	40	4	719	0	0	1.2	-0.5	1.3
6100198	99	SPEED	SUR	37	-2	567	0	0	2.1	-0.8	2.3
6100280	99	SPEED	SUR	41	1	706	0	0	1.4	-0.6	1.5
6100281	99	SPEED	SUR	40	0	679	0	0	1.7	0.0	1.7
6100417	99	SPEED	SUR	38	0	705	0	0	1.5	-0.7	1.7
6100430	99	SPEED	SUR	40	2	717	0	0	1.6	-0.2	1.6
6101003	99	SPEED	SUR	40	25	175	0	0	1.8	-0.2	1.8
6101007	99	SPEED	SUR	36	25	164	0	0	1.7	-0.9	1.9
6101008	99	SPEED	SUR	37	22	169	0	0	2.2	-0.2	2.2
6101009	99	SPEED	SUR	35	25	22	0	0	3.0	-0.1	3.0
6200024	99	SPEED	SUR	44	-3	711	0	0	1.7	-0.2	1.7
6200025	99	SPEED	SUR	44	-6	719	0	0	1.6	-0.6	1.7
6200082	99	SPEED	SUR	44	-8	718	0	0	1.3	-0.8	1.6
6200083	99	SPEED	SUR	43	-9	715	0	0	1.3	-1.1	1.7
6200084	99	SPEED	SUR	42	-9	483	0	0	1.5	-0.8	1.7
6200085	99	SPEED	SUR	36	-7	557	0	0	1.6	-0.3	1.6
6200086	99	SPEED	SUR	55	6	343	0	0	1.6	1.5	2.2
6200087	99	SPEED	SUR	55	7	491	0	0	1.3	1.2	1.8
6200091	99	SPEED	SUR	53	-5	744	0	0	1.3	-0.1	1.3
6200092	99	SPEED	SUR	51	-11	744	0	0	1.1	0.9	1.4
6200093	99	SPEED	SUR	55	-10	743	0	0	1.4	-0.2	1.4

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND SPEED (M/S) (CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
6200094	99	SPEED	SUR	52	-7	744	0	0	1.1	-0.4	1.2
62001	99	SPEED	SUR	45	-5	1985	0	0	1.2	0.7	1.4
6201065	99	SPEED	SUR	54	7	93	2	0	1.3	-0.7	1.5
6201066	99	SPEED	SUR	55	7	889	0	0	1.3	0.3	1.3
62029	99	SPEED	SUR	49	-13	1917	0	0	1.2	1.0	1.6
62081	99	SPEED	SUR	51	-13	1920	0	0	1.2	1.1	1.6
62102	99	SPEED	SUR	58	2	1944	0	0	1.3	0.4	1.4
62103	99	SPEED	SUR	50	-3	1940	0	0	1.3	-0.2	1.3
62104	99	SPEED	SUR	57	1	1888	0	0	1.2	-0.1	1.2
62112	99	SPEED	SUR	58	0	2022	0	0	1.3	-0.1	1.3
62113	99	SPEED	SUR	58	0	1879	0	0	1.4	0.6	1.5
62114	99	SPEED	SUR	58	0	2633	0	0	1.5	0.8	1.7
62118	99	SPEED	SUR	58	1	1940	0	0	1.4	0.6	1.5
62119	99	SPEED	SUR	57	2	1941	0	0	1.4	-0.8	1.6
62120	99	SPEED	SUR	56	2	1903	0	0	1.3	-0.1	1.3
62121	99	SPEED	SUR	54	3	1895	0	0	1.2	-0.5	1.3
62122	99	SPEED	SUR	57	2	2446	0	0	1.3	0.0	1.3
62129	99	SPEED	SUR	58	0	998	0	0	1.2	0.4	1.3
62131	99	SPEED	SUR	54	1	1893	0	0	2.1	-1.3	2.5
62132	99	SPEED	SUR	56	2	1901	0	0	1.3	-0.9	1.6
62133	99	SPEED	SUR	57	1	1968	0	0	1.4	0.6	1.5
62140	99	SPEED	SUR	57	1	2563	0	0	1.1	-0.2	1.1
62143	99	SPEED	SUR	58	2	1945	0	0	1.5	-0.1	1.5
62144	99	SPEED	SUR	53	2	1959	0	0	2.5	-1.3	2.8
62145	99	SPEED	SUR	53	3	2627	0	0	1.3	0.6	1.5
62146	99	SPEED	SUR	57	2	80	0	0	1.8	-0.9	2.0
62148	99	SPEED	SUR	54	2	1749	0	0	1.1	-0.2	1.2
62149	99	SPEED	SUR	54	1	1953	0	0	1.4	0.1	1.4
62152	99	SPEED	SUR	57	2	1950	0	0	3.1	-1.8	3.6
62153	99	SPEED	SUR	57	2	2400	0	0	2.0	-0.8	2.2
62154	99	SPEED	SUR	56	2	1962	0	0	1.3	0.3	1.4
62155	99	SPEED	SUR	58	1	1160	0	0	1.4	-0.2	1.4
62164	99	SPEED	SUR	57	1	1904	0	0	1.6	-1.4	2.1
62165	99	SPEED	SUR	54	1	1920	0	0	1.1	-0.5	1.2
62170	99	SPEED	SUR	51	2	1958	0	0	1.4	0.5	1.5
62304	99	SPEED	SUR	51	2	1937	0	0	1.6	0.4	1.7
62305	99	SPEED	SUR	50	0	2714	0	0	1.4	0.9	1.7
6301001	99	SPEED	SUR	64	5	582	0	0	1.8	-0.2	1.8
6301003	99	SPEED	SUR	74	24	711	0	0	1.8	-1.4	2.3
6301004	99	SPEED	SUR	72	20	713	0	0	1.4	-1.3	2.0
63055	99	SPEED	SUR	61	2	1950	0	0	1.4	-0.5	1.5

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND SPEED (M/S) (CONTINU

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
63056	99	SPEED	SUR	60	2	1953	0	0	1.5	0.6	1.6
63057	99	SPEED	SUR	59	2	1950	0	0	2.3	-0.8	2.4
63058	99	SPEED	SUR	53	2	2238	0	0	1.2	0.0	1.2
63101	99	SPEED	SUR	61	1	1940	0	0	1.6	-0.2	1.6
63103	99	SPEED	SUR	61	1	1955	0	0	1.8	0.4	1.8
63106	99	SPEED	SUR	61	2	1722	0	0	1.9	-0.5	2.0
63108	99	SPEED	SUR	61	2	1949	0	0	1.9	0.4	2.0
63109	99	SPEED	SUR	60	2	1848	0	0	1.5	0.5	1.5
63110	99	SPEED	SUR	60	2	1950	0	0	1.6	0.2	1.6
63112	99	SPEED	SUR	61	1	1953	0	0	1.4	-0.3	1.4
63115	99	SPEED	SUR	62	1	1948	0	0	1.3	-0.5	1.4
63117	99	SPEED	SUR	61	1	2545	0	0	1.5	-0.1	1.5
64045	99	SPEED	SUR	59	-12	1531	0	0	1.2	1.0	1.6
6600021	99	SPEED	SUR	55	14	193	0	0	1.1	0.2	1.1

4.11 Table 23 - Drifter Monitoring Statistics (EUCOS): Wind direction

```
          DRIFTER MONITORING STATISTICS (EUCOS)
                   MONITORING CENTRE     : ECMWF
                   ELEMENT MONITORED     : WIND DIRECTION (DEGREES)
                   AREA                  : 10N - 90N, 70W - 40E
                   PERIOD                : MAR 2022
                   STANDARD OF COMPARISON: FIRST-GUESS FIELD


TIME = 99 => AVERAGE OF ALL OBSERVATIONS
GROSS ERROR LIMIT FOR VECTOR WIND = 25 M/S
WIND SPEEDS > 3M/S USED
```

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
0041300	99	DIRN	SUR	16	-57	6	0	0	6.1	-38.3	38.8
1300001	99	DIRN	SUR	11	-23	606	0	0	5.6	-2.9	6.3
1300002	99	DIRN	SUR	20	-23	589	0	0	8.0	-2.9	8.5
1300008	99	DIRN	SUR	15	-38	602	0	0	110.8	0.8	110.8
1300130	99	DIRN	SUR	28	-16	694	0	0	10.3	4.0	11.0
1300131	99	DIRN	SUR	28	-17	314	0	0	77.5	-71.6	105.5
1801607	99	DIRN	SUR	41	-50	3349	0	0	15.2	1.7	15.3
1801608	99	DIRN	SUR	34	-72	16	0	0	4.8	-39.0	39.3
4100001	99	DIRN	SUR	35	-72	3655	0	0	24.1	5.1	24.7
4100002	99	DIRN	SUR	32	-75	4004	0	0	15.9	6.6	17.2
4100004	99	DIRN	SUR	33	-79	3997	0	0	22.0	10.7	24.5
4100008	99	DIRN	SUR	31	-81	557	0	0	26.4	3.0	26.5
4100009	99	DIRN	SUR	29	-80	3961	0	0	25.2	3.8	25.4
4100010	99	DIRN	SUR	29	-78	3886	0	0	24.8	6.2	25.5
4100013	99	DIRN	SUR	33	-78	3891	0	0	26.1	6.2	26.8
4100024	99	DIRN	SUR	34	-78	531	0	0	26.2	-0.1	26.2
4100025	99	DIRN	SUR	35	-75	3884	0	0	19.7	5.7	20.5
4100029	99	DIRN	SUR	33	-80	559	0	0	22.3	6.0	23.1
4100033	99	DIRN	SUR	32	-80	543	0	0	22.7	8.5	24.3
4100037	99	DIRN	SUR	34	-77	633	0	0	24.8	6.4	25.6
4100038	99	DIRN	SUR	34	-78	574	0	0	20.7	-13.9	24.9
4100040	99	DIRN	SUR	15	-53	4462	0	0	7.6	3.2	8.2
4100043	99	DIRN	SUR	21	-65	4185	0	0	11.6	1.9	11.7
4100046	99	DIRN	SUR	24	-68	3872	0	0	15.3	5.3	16.2
4100047	99	DIRN	SUR	27	-71	3889	0	0	12.6	6.7	14.3
4100048	99	DIRN	SUR	32	-70	4037	0	0	15.6	5.3	16.5
4100049	99	DIRN	SUR	27	-63	3754	0	0	15.0	4.8	15.7
4100052	99	DIRN	SUR	18	-65	4225	0	0	9.7	7.2	12.1
4100053	99	DIRN	SUR	18	-66	3612	0	0	13.5	3.4	14.0
4100056	99	DIRN	SUR	18	-65	4138	0	0	11.2	4.0	12.0
4100064	99	DIRN	SUR	34	-77	622	0	0	19.6	-14.2	24.2
4100066	99	DIRN	SUR	33	-80	165	0	0	17.4	13.9	22.3

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND DIRECTION (DEGREES)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
41001	99	DIRN	SUR	35	-72	5532	0	0	24.8	4.9	25.3
4100139	99	DIRN	SUR	20	-38	724	0	0	11.4	1.5	11.5
41002	99	DIRN	SUR	32	-75	6006	0	0	16.7	5.3	17.5
4100300	99	DIRN	SUR	16	-57	731	0	0	13.6	6.7	15.2
41004	99	DIRN	SUR	33	-79	6610	0	0	21.8	6.6	22.7
41008	99	DIRN	SUR	31	-81	1635	0	0	27.9	3.0	28.0
41009	99	DIRN	SUR	29	-80	5891	0	0	25.2	0.8	25.2
41010	99	DIRN	SUR	29	-79	5926	0	0	23.5	5.8	24.2
41013	99	DIRN	SUR	33	-78	5818	0	0	27.0	6.2	27.7
41024	99	DIRN	SUR	34	-79	997	0	0	26.7	-0.1	26.7
41025	99	DIRN	SUR	35	-76	5893	0	0	19.6	2.9	19.8
41029	99	DIRN	SUR	33	-80	1405	0	0	21.3	5.9	22.1
41033	99	DIRN	SUR	32	-80	1125	0	0	23.3	8.2	24.7
41037	99	DIRN	SUR	34	-77	1166	0	0	25.2	5.8	25.8
41038	99	DIRN	SUR	34	-78	1114	0	0	23.4	-14.4	27.4
41040	99	DIRN	SUR	15	-53	5082	0	0	8.3	2.9	8.8
41043	99	DIRN	SUR	21	-65	4178	0	0	11.9	-1.1	11.9
41044	99	DIRN	SUR	22	-59	13	0	0	9.0	67.7	68.3
41046	99	DIRN	SUR	24	-68	6101	0	0	14.3	6.4	15.7
41047	99	DIRN	SUR	28	-72	6418	0	0	12.8	5.3	13.8
41048	99	DIRN	SUR	32	-70	6636	0	0	16.1	4.7	16.7
41049	99	DIRN	SUR	28	-63	5570	0	0	17.0	4.4	17.5
41052	99	DIRN	SUR	18	-65	2868	0	0	9.8	6.5	11.8
41053	99	DIRN	SUR	19	-66	2695	0	0	13.6	2.4	13.8
41056	99	DIRN	SUR	18	-66	2944	0	0	11.5	4.2	12.3
41064	99	DIRN	SUR	34	-77	1331	0	0	21.8	-13.8	25.8
41066	99	DIRN	SUR	33	-80	440	0	0	17.6	14.2	22.6
4200013	99	DIRN	SUR	27	-83	1041	0	0	16.4	-0.3	16.4
4200022	99	DIRN	SUR	28	-84	1156	0	0	21.6	-4.8	22.1
4200023	99	DIRN	SUR	26	-83	1228	0	0	14.7	-1.7	14.8
4200026	99	DIRN	SUR	25	-83	1243	0	0	13.8	-1.0	13.9
4200036	99	DIRN	SUR	29	-85	3538	0	0	24.3	6.1	25.1
4200056	99	DIRN	SUR	20	-85	3214	0	0	10.3	6.8	12.3
4200059	99	DIRN	SUR	15	-67	4463	0	0	7.1	1.1	7.2
4200085	99	DIRN	SUR	18	-67	3742	0	0	18.0	11.4	21.3
42013	99	DIRN	SUR	27	-83	1391	0	0	17.6	-0.8	17.6
42022	99	DIRN	SUR	28	-84	1532	0	0	20.3	-5.9	21.2
42023	99	DIRN	SUR	26	-83	1900	0	0	13.3	-2.0	13.4
42026	99	DIRN	SUR	25	-84	1735	0	0	13.5	-1.5	13.6
42036	99	DIRN	SUR	29	-85	5335	0	0	24.7	3.6	24.9
42056	99	DIRN	SUR	20	-85	3189	0	0	10.6	6.0	12.2

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND DIRECTION (DEGREES)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
42059	99	DIRN	SUR	15	-68	4439	0	0	7.9	0.9	8.0
42060	99	DIRN	SUR	16	-63	13	0	0	2.4	74.0	74.1
42085	99	DIRN	SUR	18	-67	3159	0	0	16.6	10.7	19.8
4400005	99	DIRN	SUR	43	-69	644	0	0	18.3	0.7	18.4
4400007	99	DIRN	SUR	44	-70	3355	0	0	22.9	5.6	23.6
4400008	99	DIRN	SUR	40	-69	4029	0	0	12.9	8.9	15.7
4400009	99	DIRN	SUR	38	-75	3654	0	0	17.6	10.2	20.3
4400013	99	DIRN	SUR	42	-71	1421	0	0	13.5	7.1	15.3
4400014	99	DIRN	SUR	37	-75	3648	0	0	14.6	6.7	16.1
4400017	99	DIRN	SUR	41	-72	3975	0	0	20.3	7.5	21.6
4400020	99	DIRN	SUR	41	-70	3741	0	0	17.0	6.0	18.0
4400022	99	DIRN	SUR	41	-74	616	0	0	21.1	6.2	22.0
4400027	99	DIRN	SUR	44	-67	646	0	0	14.3	4.1	14.9
4400029	99	DIRN	SUR	43	-71	591	0	0	20.6	-0.3	20.6
4400030	99	DIRN	SUR	43	-70	577	0	0	19.8	14.1	24.3
4400032	99	DIRN	SUR	44	-69	587	0	0	23.3	1.5	23.4
4400033	99	DIRN	SUR	44	-69	526	0	0	26.0	2.4	26.2
4400034	99	DIRN	SUR	44	-68	589	0	0	19.2	8.5	21.0
4400037	99	DIRN	SUR	43	-68	560	0	0	21.0	-2.7	21.2
4400040	99	DIRN	SUR	41	-74	719	0	0	23.3	2.9	23.5
4400042	99	DIRN	SUR	38	-76	5166	0	0	23.2	6.8	24.2
4400058	99	DIRN	SUR	38	-76	5381	0	0	26.2	4.5	26.6
4400062	99	DIRN	SUR	39	-76	4936	0	0	27.6	4.0	27.9
4400063	99	DIRN	SUR	39	-76	3672	0	0	19.8	3.2	20.0
4400065	99	DIRN	SUR	40	-74	3549	0	0	17.1	12.1	21.0
4400066	99	DIRN	SUR	40	-73	1608	0	0	13.9	7.2	15.6
4400072	99	DIRN	SUR	37	-76	4495	0	0	30.1	-2.7	30.3
4400073	99	DIRN	SUR	43	-71	289	0	0	18.5	5.6	19.3
4400075	99	DIRN	SUR	40	-71	3789	0	0	14.3	-11.8	18.5
4400076	99	DIRN	SUR	40	-71	3663	0	0	14.4	-12.8	19.3
4400077	99	DIRN	SUR	40	-71	3773	0	0	13.6	-14.2	19.6
44005	99	DIRN	SUR	43	-69	2003	0	0	19.0	-0.3	19.0
44007	99	DIRN	SUR	44	-70	5602	0	0	23.2	6.1	24.0
44008	99	DIRN	SUR	41	-69	6063	0	0	13.0	8.3	15.5
44009	99	DIRN	SUR	39	-75	5446	0	0	17.1	9.2	19.4
44013	99	DIRN	SUR	42	-71	2279	0	0	16.7	6.2	17.8
44014	99	DIRN	SUR	37	-75	5442	0	0	14.9	6.1	16.1
44017	99	DIRN	SUR	41	-72	5655	0	0	19.5	6.1	20.5
44020	99	DIRN	SUR	42	-70	5614	0	0	16.8	6.1	17.9
44022	99	DIRN	SUR	41	-74	931	0	0	18.9	6.1	19.9
44025	99	DIRN	SUR	40	-73	984	8	0	95.0	-55.1	109.8

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND DIRECTION (DEGREES)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
44027	99	DIRN	SUR	44	-67	1988	0	0	15.0	3.5	15.4
44029	99	DIRN	SUR	43	-71	1718	0	0	19.1	-0.2	19.1
44030	99	DIRN	SUR	43	-70	1256	0	0	21.9	14.5	26.3
44032	99	DIRN	SUR	44	-69	1257	0	0	23.3	0.7	23.4
44033	99	DIRN	SUR	44	-69	1104	0	0	21.6	2.5	21.7
44034	99	DIRN	SUR	44	-68	1254	0	0	18.7	8.1	20.4
44037	99	DIRN	SUR	44	-68	1176	0	0	21.5	-2.8	21.7
44040	99	DIRN	SUR	41	-74	1148	0	0	16.6	3.0	16.9
44042	99	DIRN	SUR	38	-76	6163	0	0	24.8	6.5	25.7
44058	99	DIRN	SUR	38	-76	6312	0	0	26.1	4.1	26.4
44062	99	DIRN	SUR	39	-76	7059	0	0	27.7	3.6	27.9
44063	99	DIRN	SUR	39	-76	5135	0	0	19.5	3.4	19.8
44065	99	DIRN	SUR	40	-74	5057	0	0	17.3	11.0	20.5
44066	99	DIRN	SUR	40	-73	2670	0	0	14.6	4.7	15.3
44072	99	DIRN	SUR	37	-76	5637	0	0	30.8	-2.6	30.9
44073	99	DIRN	SUR	43	-71	626	1	0	37.0	3.6	37.1
44075	99	DIRN	SUR	40	-71	5089	0	0	14.5	-11.8	18.7
44076	99	DIRN	SUR	40	-71	5018	0	0	15.1	-12.8	19.8
44077	99	DIRN	SUR	40	-71	5074	0	0	14.2	-14.0	20.0
44137	99	DIRN	SUR	42	-62	765	0	0	19.9	9.5	22.1
44139	99	DIRN	SUR	44	-57	810	0	0	26.7	22.5	34.9
44150	99	DIRN	SUR	43	-64	835	0	0	19.3	11.3	22.3
44258	99	DIRN	SUR	45	-63	797	0	0	20.7	1.8	20.8
44489	99	DIRN	SUR	46	-61	754	0	0	19.0	2.0	19.1
44490	99	DIRN	SUR	45	-66	750	0	0	22.8	2.2	22.9
6100198	99	DIRN	SUR	37	-2	405	0	0	21.2	1.9	21.2
6100281	99	DIRN	SUR	40	0	501	0	0	24.9	-5.8	25.6
6100417	99	DIRN	SUR	38	0	526	0	0	16.5	5.8	17.5
6200024	99	DIRN	SUR	44	-3	556	0	0	21.0	-5.2	21.7
6200025	99	DIRN	SUR	44	-6	415	0	0	18.9	0.3	18.9
6200082	99	DIRN	SUR	44	-8	557	0	0	13.9	-4.2	14.5
6200083	99	DIRN	SUR	43	-9	551	0	0	13.7	3.3	14.0
6200084	99	DIRN	SUR	42	-9	344	0	0	18.9	7.3	20.2
6200085	99	DIRN	SUR	36	-7	443	0	0	18.8	4.7	19.3
6200091	99	DIRN	SUR	53	-5	584	0	0	15.8	3.6	16.2
6200092	99	DIRN	SUR	51	-11	664	0	0	12.0	2.2	12.2
6200093	99	DIRN	SUR	55	-10	636	0	0	16.1	8.4	18.2
6200094	99	DIRN	SUR	52	-7	683	0	0	12.8	6.8	14.5
62001	99	DIRN	SUR	45	-5	1858	0	0	13.1	4.9	14.0
62029	99	DIRN	SUR	49	-13	1726	0	0	12.3	8.7	15.1
62081	99	DIRN	SUR	51	-13	1752	0	0	10.9	-5.3	12.1

DRIFTER MONITORING STATISTICS (EUCOS)
MONITORING CENTRE : ECMWF
ELEMENT MONITORED : WIND DIRECTION (DEGREES)
(CONTINUED)

WMO IDENT	OBS TIME	ELM	LEVEL	MEAN LAT	MEAN LONG	NUM OBS	NUM GROSS	% GROSS	SD	BIAS	RMS
62103	99	DIRN	SUR	50	-3	1837	0	0	14.3	6.3	15.6
62112	99	DIRN	SUR	58	0	1840	0	0	12.7	-3.6	13.2
62114	99	DIRN	SUR	58	0	2412	0	0	10.4	-0.5	10.4
62305	99	DIRN	SUR	50	0	2532	0	0	15.5	9.4	18.2
64045	99	DIRN	SUR	59	-12	1446	0	0	11.6	-8.3	14.2

4.12 Table 24 - List of Assimilated BUFR Encoded Radiosonde Stations

ASDE09	ATGU3FT	BPMWB2N	DBLK	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW
LRYQE3U	USBOD	USCAT	USSIO	USYES	UXK5JTU	WDK38HS	XQFJRGX	YLV96WM
ZVQEQCM	2EERVTP	7JUNA4N	01001	01004	01010	01028	01241	01400
01415	01492	02365	02527	02591	02836	02963	03005	03023
03238	03354	03502	03743	03808	03882	03918	03953	04018
04089	04220	04270	04320	04339	04360	06011	06260	06458
06610	07110	07145	07510	07645	07761	08001	08023	08190
08221	08302	08383	08430	08508	08522	08536	10035	10113
10184	10238	10304	10393	10410	10548	10618	10739	10771
10868	10954	10962	11010	11035	11120	11240	11520	11747
11952	12120	12374	12425	12843	12982	13275	13388	14015
14240	14430	15420	15614	16045	16064	16113	16144	16245
16332	16429	16546	16622	16716	16754	17030	17095	17196
17220	17240	17351	17607	20674	22008	23205	23472	23884
24908	26038	26435	26708	27459	27707	27713	28225	28661
29612	29698	30673	37789	40179	40186	42101	42379	45004
47102	47104	47138	47155	47169	47186	47401	47412	47582
47646	47678	47807	47827	47909	47918	47945	47971	47991
50527	50557	50774	50953	51076	51243	51431	51463	51644
51656	51709	51777	51828	51839	52203	52267	52323	52418
52533	52652	52681	52818	52836	52866	52983	53068	53463
53513	53543	53614	53772	53845	53915	54102	54135	54161
54218	54292	54374	54511	54662	54727	54857	55299	55591
56029	56046	56080	56137	56146	56187	56492	56571	56651
56691	56739	56778	56964	56985	57083	57127	57131	57178
57245	57447	57461	57494	57516	57687	57749	57816	57957
57972	57993	58027	58150	58203	58238	58362	58424	58457
58606	58633	58665	58725	58847	59023	59134	59211	59265
59280	59293	59316	59431	59758	59981	60018	60155	60390
60571	60630	60656	60680	61660	61901	61980	61998	63894
63985	66160	68263	68424	68442	68512	68816	70026	70133
70200	70219	70231	70261	70308	70316	70326	70350	70361
70398	71043	71081	71082	71109	71119	71603	71722	71802
71811	71815	71816	71823	71836	71845	71867	71906	71907
71908	71909	71913	71917	71924	71925	71926	71934	71945
71957	71964	72201	72206	72208	72210	72214	72215	72230
72233	72235	72240	72248	72249	72250	72251	72261	72265
72274	72293	72305	72317	72318	72327	72340	72363	72364
72365	72376	72388	72403	72413	72426	72440	72451	72476
72489	72493	72501	72518	72520	72528	72558	72562	72572
72582	72597	72632	72634	72645	72649	72659	72662	72672
72681	72694	72712	72764	72768	72776	72786	72797	73033
73110	74389	74560	76225	76256	76394	76405	76458	76526
76595	76612	76654	76679	76692	76743	76805	76903	78897
78954	81405	83768	85442	85586	85799	85934	87155	87344
87576	87623	87860	88889	89002	89062	89564	89571	89592
89611	89625	89642	89859	91165	91212	91285	91592	91610
91765	91925	91938	91948	91958	93112	93417	93817	93844
94120	94150	94170	94203	94299	94302	94312	94326	94332
94374	94403	94430	94461	94510	94578	94610	94637	94638
94653	94659	94672	94711	94767	94776	94802	94821	94866
94910	94975	94995	94996	94998	95282	95527	96996	

4.13 Table 25 - List of BUFR Encoded Radiosonde Stations with no TAC Counterpart

ASDE09	ATGU3FT	BPMWB2N	FPUW5GN	HTXUH4H	JNKN7JF	KJJF9XN	KMPLHPW	LRYQE3U
UXK5JTU	WDK38HS	XQFJRGX	YLV96WM	ZVQEQCM	2EERVTP	7JUNA4N	01010	01028
01415	01492	02365	02527	02591	02836	02963	03953	06610
07110	07145	07510	07645	07761	08001	08023	08190	08221
08302	08383	08430	08536	11010	11035	11120	11240	17607
40186	47155	50527	50557	50774	50953	51076	51243	51431
51463	51644	51656	51709	51777	51828	51839	52203	52267
52323	52418	52533	52652	52681	52818	52836	52866	52983
53068	53463	53513	53543	53614	53772	53845	53915	54102
54135	54161	54218	54292	54374	54511	54662	54727	54857
55299	55591	56029	56046	56080	56137	56146	56187	56492
56571	56651	56691	56739	56778	56964	56985	57083	57127
57131	57178	57245	57447	57461	57494	57516	57687	57749
57816	57957	57972	57993	58027	58150	58203	58238	58362
58424	58457	58606	58633	58665	58725	58847	59023	59134
59211	59265	59280	59293	59316	59431	59758	59981	66160
72413	76743	76903	89642	89859	91925	91938	93817	94653

5 Annex - Explanations of figures and tables

5.1 General

All information presented in this report is based on data received at ECMWF before the appropriate analysis. Approximate cut-off times (UTC) are shown below:

Analysis	Obs Time	Cut-off
0000	2101-0300	1530 (16 hours)
1200	0901-1500	1900 (7 hours)

5.2 Data Availability

For each observation type/parameter the average number of reports received per day is displayed in boxes of 5 degrees square. The numbers plotted are the nearest integer values - e.g. if 40 reports were received during the month then the average daily value plotted will be 1. If the average number is greater than 1000 then 999 will be plotted. If the average number is less than 0.5 then the digit 0 will be plotted. If no observations were received then the box will be left blank.

5.3 Data Quality

The information presented on data quality is based on differences between observations and the values of the most recent ECMWF forecast ("first guess") of the same parameter. Depending on the time of the observation, the forecast range is between 9 and 15 hours. The ability of a modern data assimilation system to provide the diagnostic facilities to monitor the performance of the observational network is demonstrated by A. Hollingsworth et. al., Monthly Weather Review, Vol 114, No. 5, May 1986.

It should be noted that:

(i) all results are based on software that may undergo further development;

(ii) although the quality of the ECMWF first-guess fields is of a generally high standard this is only true to a limited extent in the tropics, where small-scale processes such as convection are of much greater importance than in mid-latitudes, and the observations will sometimes not be representative of the scales of motion given by the first-guess;

(iii) the first-guess fields themselves will vary in accuracy depending on the density and quality of data, particularly in the upstream regions and over Antarctica and the southern hemisphere mid-latitudes. Direct comparisons between stations (or airlines) should preferably be restricted to observations in a reasonably homogeneous climatic region.

Tables 1-9 contain lists of SHIPs (including fixed marine platforms), DRIFTERs, TEMPs and TEMPs/PILOTs believed to have supplied suspect reports of surface pressure, geopotential height or wind during the month. The format of the tables is according to Recommendation 3 CBS-Ext(85) and the criteria for stations or data platforms to be classified as suspect are given at the top of each table. For tables 7 and 8 data for the worst

standard pressure level are shown. Units of RMS, standard deviation and bias are hPa in tables 1 and 4, m in table 7 and ms^{-1} in tables 2, 5 and 8. In tables 7 and 8 the station position is indicated; in the case of TEMPSHIPs and PILOTSHIPs this position is obtained from the first report of the month. The gross error limits for first-guess deviations of geopotential in table 7 are as follows:

Level	Geop
1000	100m
925	100m
850	100m
700	100m
500	150m
400	175m
300	200m
250	225m
200	250m
150	275m
100	300m
70	375m
50	400m
30	450m

The corresponding limits for wind (table 8) are:

Level	Wind
1000	$35ms^{-1}$
925	$35ms^{-1}$
850	$35ms^{-1}$
700	$40ms^{-1}$
500	$45ms^{-1}$
400	$50ms^{-1}$
300	$60ms^{-1}$
250	$60ms^{-1}$
200	$50ms^{-1}$
150	$50ms^{-1}$
100	$45ms^{-1}$

In table 7 the weighted RMS values at standard levels are calculated using the following weights:

Level	Weight
1000	3.70
925	3.55
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

Tables 10 and 11 provide geopotential and wind quality statistics (100 hPa level) for TEMPSHIPs and PILOTSHIPs received during the month. Units and display format are identical to those in tables 7 and 8 respectively. Tables 13, 14 (50 hPa), 15 and 16 (100 hPa), 17 and 18 (500hPa), 19 and 20 (850hPa) provide similar radiosonde statistics for the EUCOS area.

Tables 21-23 are similar to tables 4-6 with data coverage restricted to the EUCOS area.

Figures 14-18 show global charts of SATOB and aircraft wind quality, where the statistics have been averaged over latitude/longitude boxes of 5 degrees square, and the mean observed minus first-guess (or 'bias') wind vectors have been plotted. All observations in the specified layers have been used. For comparison the mean observed wind (from the SATOB reports only) for each layer is shown in figures 14 and 15. A reference value of wind speed is plotted in the top right corner of each figure. An arrow is only plotted if 10 or more observations have been received in that 5 degree square.

Table 12 provides quality statistics of aircraft wind observations in the layer 300-150 hPa stratified by airline carrier. The format and specifications of the table have been defined by NMC Washington, the lead centre for the monitoring of aircraft and satellite data.

Table 24 shows list of Assimilated BUFR Encoded Radiosonde Stations monitored within the month.

Table 25 shows list of BUFR Encoded Radiosonde Stations with no TAC Counterpart monitored within the month.